# Option Manual

# Setup Assistant

Software release - 5.2

**PHILIPS**

*Assembleon*

Integrated electronics manufacturing solutions

| Document | Option Manual |
|---|---|
| Based on | Setup Assistant 5.2 |
| Order number | 4022 591 90556 |
| Supplied with | PA 2090/xx |

| HISTORY | | | | | |
|---|---|---|---|---|---|
| ISSUE | DATE | ORDER NUMBER | REVISION CODE | STATUS | RELEASE DOCUMENT |
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# CHAPTER 1    Introduction

Setup Assistant (successor of SVS Pro and AMS setup Assistant) is a system to verify and prepare the feeder or tray on trolley and/or banks set-up of the placement machines in a production line. It ensures that the right components are installed on the right position of the machine, such that all products will be mounted with the appropriate components. Setup Assistant 5.2 works with the Assembléon AX-201, AX-301, AX-501, MG-series component mounters and is taking full advantage of the intelligence in the intelligent tape feeders (ITF-2, TTF) and trolleys. None intelligent feeders and trays, are also supported.

Setup Assistant is also referred as SA in this manual.

## 1.1    Purpose of this option manual

The purpose of the Option Manual is to supply sufficient information to keep the Setup Assistant option in such a condition that a performance within specification is guaranteed.

## 1.2    Target groups

The target groups for this manual are:

- Authorized maintenance personal

- Customer service field engineers

- Assembléon training centers

**NOTE:    Concerned people are expected to be well informed about the content of Tab 3 *Operating manual*.**

## 1.3    Product overview

For Setup Assistant the hardware and software are separated. Each SA product contains all the items/parts for one machine or trolley or bank. Depending on what machine trolley or bank is used a specific SA product must be ordered, for additional information refer to SI-FI-511.

| Setup Assistant products Description | Order number |
| --- | --- |
| Setup Assistant  LOADING UNIT | PA 2090/21 |
| Setup Assistant  AX EUR/APR | PA 2090/62 |
| Setup Assistant  AX USA | PA 2090/64 |
| Setup Assistant  AX-201 EUR/APR | PA 2090/56 |
| Setup Assistant  AX-201 USA | PA 2090/58 |
| Setup Assistant  M-Series[1] EUR/APR | PA 2090/77 |
| Setup Assistant  M-Series[1] USA | PA 2090/79 |
| Setup Assistant (Barcode) ID SET FOR BULK (FCM upgrade Trolley) | PA 2090/11 |
| Setup Assistant (Barcode) ID SET FOR BULK (A-series Trolley) | PA 2090/12 |
| Setup Assistant SW RELEASE 5.2 *(ACM AQ, FCM and GEM will not be supported by SA software 5.2)* | PA 2090/89 |
| Setup Assistant 5.2  upgrade from SVS-pro | PA 2090/88 |

[1] *M-Series support is available in the software. But these upgrade articles are not yet available, M-Series support will be restricted to MG-1 and MG-8 (using ITF feeders is essential)*

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| Setup Assistant products | |
|---|---|
| **Description** | **Order number** |
| Setup Assistant FEEDER TROLLEY UPGRADE FCM-II TROLLEY (one feeder trolley) | PA 2090/10 |
| Setup Assistant AX-201 FOR TRAY TROLLEY UPGRADE (For one Tray trolley) | PA 2090/95 |
| Setup Assistant upgrade for feeder trolley (M-Series)[1] | PA 2090/36 |
| Setup Assistant upgrade for feederbank (M-Series)[1] | PA 2090/37 |
| Setup Assistant  LCS/ATS Tray trolley upgrade (for one trolley)[1] | PA 2090/90 |
| Setup Assistant TTF lane id set<br>( contains stickers (Lane 1 and lane 2) for 37 twin tape feeders) | 9498-396-01522 |
| Splice detection kit for AX-201<br>(Check if not present, this function is present if the Hub is mounted in the system cabinet.<br>For more information refer to SI-A-Series 73) | 9498-396-02429 |

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[1] *M-Series support is available in the software. But these upgrade articles are not yet available, M-Series support will be restricted to MG-1 and MG-8 (using ITF feeders is essential)*

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# CHAPTER 2   Safety

For the correct and safe use of Setup Assistant, it is essential that all personnel should follow generally accepted safety procedures in addition to the safety precautions specified in this manual. All manuals have danger, warning and cautionary statements throughout the manual where applicable. Danger, warning and cautionary statements or symbols are present on the machine where applicable.

## 2.1      Personnel qualification

Operation, adjustment, maintenance and repair of any machine may only be carried out by qualified and trained personnel. In this document the assumption is made that operators, maintenance personnel and service personnel are properly trained in the tasks that they are intended to perform. The following training levels are defined:

- Operator level.

- User or supervisor level.

- Maintenance or service level.

NOTE:    **For each level an Assembléon training is available.**

## 2.2      Basic safety rules

- Do not use the machine in an environment where flammable gasses are present or where it is extremely dirty.

- When any personal protection equipment (PPE) is mentioned, it should be used in accordance with the manufacturer's instructions.

## 2.3      Safety compliance

The safety of this product is based on industry-specific criteria (international codes, regulations, and standards).

## 2.4      Danger, warning and caution

Danger, warning and caution statements are displayed in the following manner:

**Danger**
Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ **DANGER**

HAZARD IDENTIFICATION
Hazard consequence.
Hazard avoidance.

**Warning**
Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ **WARNING**

HAZARD IDENTIFICATION
Hazard consequence.
Hazard avoidance.

**Caution**
Caution indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

⚠ **CAUTION**

HAZARD IDENTIFICATION
Hazard consequence.
Hazard avoidance.

## 2.5 Safety stickers

| Pictogram | | Category | Meaning |
|---|---|---|---|
| 1 | | WARNING | DANGER OF HIGH VOLTAGE<br><br>Contact may cause electric shock or burn. Turn off & lock out system before servicing. |
| 2 | | WARNING | DANGER OF CLAMPING FINGERS<br><br>Serious injury to fingers. Keep hands away from moving parts. |
| 3 | | WARNING | CAUTION.<br><br>Laser Radiation. Do not stare into beam. |

## 2.6 Emergency contact

In case assistance is needed during an emergency situation, contact the regional Assembléon organization

| Region | Telephone number |
|---|---|
| Asia | +65-62-61-4611 |
| America's | 1-800-474-4547 |
| Europe | +31-20-5040679 |

## 2.7 Liability

Assembléon will not be liable for any costs, damages or personal injuries if the machine is not used according to the safety rules given in this manual. Instructions written in English are original instructions. Instructions written in other languages are a translation of the original.

## 2.8 Standards

Setup Assistant complies with the safety standards CE/SEMI/CSA

| Certificate | Standards |
|---|---|
| CE (LVD, EMC) | IEC 60204-1:2000<br>EN55022/A1:2000<br>EN 55024:1998 |
| SEMI | S2-0200E |
| CSA | UL 60950:2000 |

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## 2.9    Barcode scanners

The barcode scanners use a laser to scan the barcodes. To prevent eye damage do not stare into the laser beam.



CAUTION.
Laser Radiation. Do not stare into beam.

# CHAPTER 3    System description

This chapter clarifies the design and function of the Setup Assistant in general. Explained are basics such as the Off-line & On-line preparation & verification, Warnings and other features. Furthermore is explained the function of the several modules and how they cooperate with each other.

Setup Assistant prevents wrongly produced products (decreases DPM level, Defects Per Million), increases product line efficiency (faster change-over and low component quantity warnings) and generates traceability information. Above this, Setup Assistant makes changing-over more user-friendly and error-proof.

Setup Assistant has four major functions:

- Off-line set-up preparation and verification of feeders and trolleys (on the Loading Unit)

- On-line set-up verification of feeders and trolleys

- Low component quantity warning

- Interface and provide data for traceability

**General**

Setup Assistant consists of two main elements: the stand-alone Loading Unit (also referred as LU) and the Setup Assistant software, installed on the placement system(s) and the Loading Unit. Both units are equipped with a barcode scanner.



Loading Unit and screen dump of the SA software

The SA Loading Unit is a small trolley that conveniently can be moved over the factory floor. In this way it can easily be placed near the feeder trolleys that need to be prepared. The Loading Unit is used to prepare feeder set-up off-line. It guides the operator as to which reel needs to be on which trolley position. When a feeder is inserted in the trolley, the Loading Unit verifies whether it is the correct feeder, with the correct part on the correct position. In this way an error-free set-up is guaranteed.

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### 3.1    Setup Assistant Modules
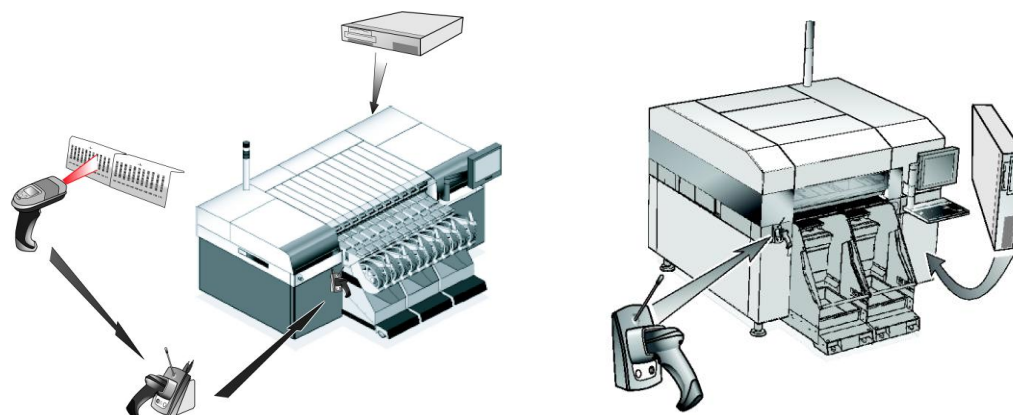


**Functional Setup Assistant units added on the A-series machine**

#### 3.1.1    Setup Assistant system controller

The Setup Assistant software is running on the SA system controller. It continuously verifies the set-up at the machine and stops the machine immediately when this set-up appears to be wrong. Error messages will be shown on the machine or scanner display.

Furthermore this system warns the operator that a certain feeder is almost running empty. The operator subsequently replenishes the reel during production. This increases the production line efficiency, because it prevents complete line stops due to lack of components.

The controller communicates with:

- Machine controller (action specs, configuration of Setup Assistant and machine, logging, board transport information, messages to the user and error messages, second source items)

- Base station and barcode scanner (messages to the user and scanned barcodes)

Feeder trolley (excerpts of action specs)•

| Location of the SA system controller | |
|---|---|
| AX-201 | In front at the runout section, left to the ASC and APC |
| AX-3/5 | On the rear at the runout section |
| M-Series[1] | On a bracket outside of the machine (rear left side) |

#### 3.1.2    Base station and Barcode scanner

This is the base station of the scanner; it communicates with the scanner via radio-waves and charges the scanner's batteries.

The barcode scanner reads the barcodes and has a display for all Setup Assistant messages to the user.

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[1] *M-Series support is restricted to MG-1 and MG-8 (using ITF feeders is essential)*

### 3.1.3 Feeder Trolley

The AX-201 can handle four different trolley types, the FCM-II trolley, the A-series feeder trolley, the new A-Series tray trolley and the old AQ tray trolley.

The AX-301/AX-501 can handle two different trolley types, the FCM-II trolley and the A-series trolley. The FCM-II trolley must be upgraded with a new trolley control board. The A-series trolley is already prepared with the new trolley control board and is compatible with Setup Assistant.

The trolley control board in the feeder trolley, transfers information from the memory of the ITF feeders via a CAN bus to the Setup Assistant controller. It also stores data for non-intelligent feeders (dumb feeder).

### 3.1.4 Feeders

Setup Assistant supports the following feeders:

- Intelligent feeders (ITF) and Twin Tape Feeders (TTF). They have memory on board to store feeder data and component data (e.g. quantity, part number) It can be difficult to distinguish between lanes on twin feeders. To make the scanning of the lanes more simple, the lanes can be marked with a lane barcode sticker.

- Non-intelligent feeders (dumb feeder). They can be configured to be checked or to be ignored. The data, normally stored in the feeder, will be stored in the memory of the trolley.

Note:   An intelligent feeder that does not communicate is not considered a non-intelligent feeder but is broken and cannot be used on the system in combination with Setup Assistant.

## 3.2 Functionality

### 3.2.1 Off-line set-up preparation and verification (SA Loading Unit)

The Setup Assistant Loading Unit is used to prepare and verify the feeder set-up off-line. It can be operated with a touch screen, keyboard or barcode scanner.

- **Feeder loading**. The loading Unit has a 'Feeder loading unit' to (un)load and program a feeder. For intelligent feeders the feeder information is available (index pitch, total amount of feeding cycles, serial number) and data about the loaded reel can be programmed (operator ID, part number, vendor code, lot code, initial quantity) into the feeder. This data is read from the feeder and used to check whether the feeder set-up on the trolley and placement machine is correct.
  For non-intelligent feeders the data will be stored in the trolley memory.



**Feeder loading station**

- **Feeder unloading**. Before programming a feeder any existing data must be cleared from the feeder memory. The operator ID and date/time of this operation are stored, such that it is traceable who cleared the feeder's memory.

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- **Trolley Loading.** When a trolley is connected to the SA Loading Unit the feeder set-up of that trolley is verified against the feeder set-up of the process program that is selected. When the feeder set-up is wrong or incomplete, the Loading Unit shows the warnings and errors. The Loading Unit detects when a feeder is inserted in the trolley. It immediately checks if the position is correct. If not, it shows the right position where this feeder should be positioned.
  When a feeder with a feeder low warning is on the trolley, the feeder can be spliced on the Loading Unit. The reel data of the spliced reel is stored in the feeder's memory.

- **Barcode printer** (optional). With a barcode printer connected to the SA Loading Unit the remaining quantity of components on the reel can be printed on a barcode label together with all information that is stored in the feeder memory. When the reel is re-used, this label has to be scanned to program the feeder with the correct component quantity.
  For the printing of barcode labels, Setup Assistant supports the ZPL or EPL format. The Zebra LP2844 Printer has been tested with SA. See the software chapter for more details about label definition.

- **Text printer** (optional). When a text printer is connected to the Loading Unit several reports can be printed:
  - A list of required parts (including second-sources) for a specific process program. With this list, the operator subsequently can go and 'shop' for the right components.
  - A list of errors and warnings. This list shows all part numbers that are still needed for the connected feeder trolley.
  - A list of the current set-up. This list shows all part numbers that are currently available on the connected feeder trolley.
- Transferring files to the Loading Unit. Process programs and second source lists can be transferred via Local Area Network, CD-ROM and USB stick.

### 3.2.2 On-line set-up verification

On the component mounter, the feeder set-up is verified continuously, but special checks occur at the following events:

- **Splicing.** When the operator splices a specific feeder, Setup Assistant verifies whether the scanned new reel is the same part as the currently loaded part in the feeder.

- **Program change on machine**. When changing to another product all necessary feeders and components are checked for presence and position.

- **Intelligent feeder insert**. When an intelligent feeder is inserted in the machine it is automatically detected. SA verifies whether the part, loaded in the feeder, is needed at the specific location.

- **Load non-intelligent feeder**. When a non-intelligent feeder is loaded via the 'load non-intelligent feeder' procedure, SA will verify whether the scanned part is needed at the scanned feeder location and stores the data in the trolley memory.

- **Feeder removal**. When an intelligent feeder is removed from the machine SA will automatically detect it and verify whether the parts are used for the currently produced product. The machine will be stopped immediately if the parts are used.

- **Trolley insert**. When a trolley is inserted in the machine it is automatically detected and verified by SA. Subsequently the trolley's and feeders' memory are read and verified on: position, set up for the current product and correct parts.

- **Trolley removal.** Trolley removal is detected and SA verifies whether the trolley and its feeders were used for the currently produced product. The machine will be stopped immediately if the feeders are used.

- **Operator initiated rescan.** On the machine a barcode is present for the operator to initiate a rescan of the barcodes.

### 3.2.3    Low component quantity warning

During production, the amount of components left on the feeders is continuously updated. When a feeder has less than a pre-defined amount of components left, the operator is warned by a blinking light on the feeder and by warning message on the GUI of the machine and on the barcode scanner.

The empty tape warning is given:

- For intelligent feeders: if there is less than a specified length (cm) tape left

- For non-intelligent feeders: if less than x PCBs (configurable) can be produced

**Alternate feeding**

The A-series support alternate feeding. This means that when one feeder is empty, the components can be picked from another feeder that contains the same component. The remaining quantity is checked:

- For intelligent feeders; per feeder

- For non-intelligent feeders; all alternative feeders combined

Setup Assistant has a restriction with respect to non-intelligent feeders in combination with alternate feeding, that these non-intelligent feeders are not checked. The splice function must be used when a primary or alternate feeder becomes empty. Setup Assistant will not indicate that an alternative feeder must be set up. The operator has to initiate this by scanning the feeder position.

### 3.2.4    Interface and data for traceability

To support traceability, the reelid (materialId) should be unique for each reel. If reelid is not used, the combination of: partnumber, vendorcode and lotcode should be unique for each reel.

## 3.3    SA Features

1. *Randomscan*:  all required barcodes, except "operator id", can be scanned in random order. Barcodes require prefix-identifiers and random scanning must be enabled..

2. *Forced operator ID rescan*: This function can be used to let the operator rescan his/her ID in the following situations:
   o   When loading a reel or a tray,
   o   When starting a splice operation,

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- o When the start of a rescan procedure.
- o After the validity of the Operater ID scan is expired (time can be set in Operator used and Operator ID rescan)

3. *Family setup.* To run different products without changeover. Loose check: All <u>used</u> feeders in program. Strict check: all feeders in program.

4. *Common second source* file location: When using multiple machines it can be useful to have one location on the network for second source files that can be accessed by all Setup Assistant systems. This works for the Loading Unit and the AX-201, for AX-3/5 there is a workaround to enable this.

5. *Forced feeder rescan*: To make sure the reel and the reel information in the feeder match "Forced feeder rescan" can be enabled. Feeders must be rescanned after:

- o feeder enabling
- o feeder inserted in the machine
- o a trolley (with the feeder) is inserted
- o system power-up
- o manual pick error
- o unexpected splice detection

6. *Lite functionality*: With the "lite" functionality, all important functions of the loading unit can be executed on the Setup Assistant system controller on a placement machine (load feeder, unload feeder, print, setup, and pitch setting).

### 3.3.1 **Family setup**

Setup Assistant supports family setup. Family setup means if all feeders of the setup are placed on the machine several different products can be produced without changing feeders of the setup.

To set the family setup scenario refer to the software tab of this option manual.

In the actual setup screen all feeders are displayed. Make sure that a process program is selected first. If there is a grey bullet in front of the position, the feeder is not used in the setup.

### 3.3.2 **Second sources and alternative parts**

Setup Assistant supports the use of parts from different suppliers ('second source parts') and alternative parts. Second source parts are part numbers that are (electrically) identical to the primary part number, but have a different part number. Alternative part numbers have different electrical characteristics, but can be used instead of the required part number.

It is possible to install a second-source list in which is indicated which equivalent parts are allowed. The scope of the second-source part can be either allowed for all products or allowed for one product.

When, during set-up verification, the verification fails, it is checked whether the found part is an alternative for the original one or not. When this is not the case, the machine is stopped.

### 3.3.3 **Automatic Pitch Programming (A-series machines)**

Setup Assistant supports automatic pitch programming for ITF/TTF feeders on AX machines. With this option the correct index for every feeder is automatically set. SA uses

information from the component file (Feeding section, Index attribute) and the AX Process Program (Setup-Section-Trolley-Feeder section, FeederType attribute) to determine the correct pitch (index) setting for the feeder. Therefore it is important that the Index and FeederType attributes are filled in correctly.

When a feeder (or a trolley) is connected to the machine, all pitch information will be retrieved from the component database that is present on the AX controller. The pitch in the feeder memory will be ignored so pitch settings on the Loading Unit are useless.

### 3.3.4 Operator ID

It is configurable to let the operator scan his/her ID before certain actions can be performed. In this way it is always traceable who performed certain actions. Setup Assistant will show an Operator ID dialogue that can be scanned and also entered by keyboard (optional). After the operator ID has been scanned or entered the selected action is performed.

When this function is enabled, the actions that require the operator to scan his/her ID are:

- Feeder splice
- Load feeder
- Unload feeder
- Re-scan of feeders
- Disable  Setup Assistant

Scanning the operator ID has a limited validity. When during a configurable amount of time no operator action occurred, a rescan is required. In this way it is ensured that the stored data matches with reality.

### 3.3.5 Barcodes

Setup Assistant can be set up with regular expressions to identify the scanned barcode. When this option is used, the barcodes can be scanned in random order. If not, the barcodes must be scanned in the following pre-defined order:

1. Operator ID (if configured)
2. Part number (if configured)
3. Supplier (if configured)
4. Lot code (if configured)
5. Reel ID (if configured)
6. Quantity (if configured)
7. Expiration date (if configured)

Setup Assistant supports Code 39 and Code 128 (including 128C) barcodes.

The barcodes can be checked against configurable rules of length. The maximum lengths for Part number, Supplier, Lot code, and Reel ID together is 41 characters. Part number barcodes can also be checked on configurable format rules.

Setup Assistant has the option to 'autofind' a defined format within a barcode of a part number. In this way, a mix of barcodes with and without identifiers can be used.

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Combined supplier-lot codes are supported as well. Using combined supplier-lot codes, only one code has to be scanned, instead of two, which saves time.

### 3.3.6 **Lite mode**

SA can be used to setup a placement machine offline (with a Loading Unit) or inline on the placement machine, this last option is called the Lite mode. The main functions of the Loading Unit are incorporated into the Setup Assistant system controller software. These features are:

- Loading a feeder

- Unloading a feeder

- Setting the feeder pitch

- Printing reports (an optional printer must be installed)

- Printing barcodes (an optional barcode printer must be installed)

The "Lite" functionality can also be used in combination with a Loading unit.

### 3.3.7 **Splice detection**

Splice detection functionality is intended to increase the accuracy of the component countdown, by synchronizing the count at the passage of the splice.

SA can automatically detect a splice. This splice should be made with three empty pockets to be detected (these will not influence MIS or other performance data or cause a "failed to pick" error).  Once the splice is detected traceability data will automatically be updated.

Splice detection requires the use of quantities. If for Setup Assistant no quantities are used splice detection will be switched off.

Splice detection can be used on the A-series machines.
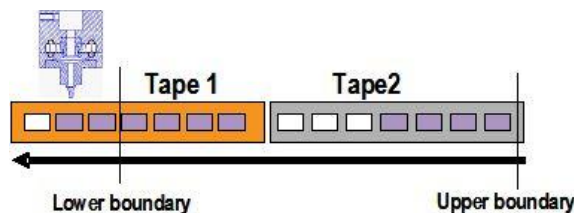


**Splice detection**

Another method to detect splices (on AX-301/AX-501 machines only) is by using the BA camera, this method is named BA Splice detection[1]. The BA camera will be used to identify the changeover from old to new reel. The splice has to be marked by covering the top foil of the tape with a coloured piece of special sticky tape, this is known as the splice tape. The BA camera can detect the presence of this splice tape and this method is used to detect the splice.

---

[1] *BA Splice detection is sold as an additional option for AX-301/AX-501 machines, it is a software license enabled function.*
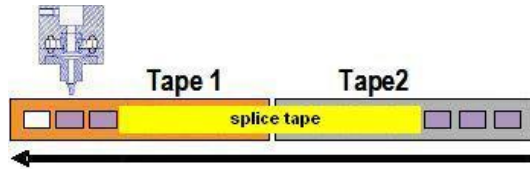
**BA Splice detection (camera detects presence of splice tape)**

To switch on splice detection see TAB 5 "Setup Assistant – Software & Configuration" and further.

### 3.3.8    Forced feeder rescan

With this option enabled, the user is forced to rescan the partnumber, each time when inserting a feeder or tray. Depending on the chosen configuration it is possible to have:

- Forced Feeder rescan on Manual Pick error
- Forced Feeder rescan on splice detected

### 3.3.9    Forced rescan operator ID

With this option enabled, the user is forced to rescan his/her operator ID, each time when loading or splicing a reel (tray) action is to be performed.

### 3.3.10    Multi language support

Setup Assistant is prepared for multi language support. This means that when on the A-series machine the language of the user interface is changed and also Setup Assistant needs to give the corresponding language it can be offered by Assembléon via the normal Assembléon sales representatives.

This multi language support includes the barcode scanner messages, Graphical user interface messages and operator manual in the specific language.

The configuration file and second source file and option manual will remain in English and will not be translated.

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# CHAPTER 4    Technical specifications

| | |
|---|---|
| Supported feeders | ITF-2 tape feeders<br>Twin Tape feeders<br>Non-intelligent feeders with ITF mechanical and electrical interface (excl. communications) |
| Supported Barcodes | Code 39<br>Code 128<br>Code 128C |
| Barcode verification | Length (Max length Reel ID=7, PartNumber+LotCode+SU+ReelID=41, others can be configured) |
| Barcode identifiers support | Compatible with standard ANSI MH10.8.2-1995 "Data Application Identifier Standard"<br>Identifiers may consist of multiple characters. |
| Second Source file support | Yes, via second-source file<br>Max. 10 alternative sources per feeder lane |
| Alternate feeding Supported | AX-201, AX-301/501 |
| Additional connections | *Barcode label printer*<br>*Text printer (for reports)* |

## 4.1    Setup Assistant Loading Unit & Machine package

| | Setup Assistant Loading Unit | Setup Assistant Machine Package |
|---|---|---|
| Operating System | Windows XPe | Windows XPe |
| Weight | 100 kg | ~8 kg (controller) |
| Dimensions (w x d x h) | 600 x 710 x 1120 mm | n.a. |
| Electrical | 110-240 Vac, 47-63 Hz, 150 VA max. | 110-240 Vac, 47-63 Hz, 100 VA max. |

## 4.2    Setup Assistant Barcode Readers

| Manufacturer and type | Datalogic Optic Electronics | Remarks |
|---|---|---|
| Scanner | DLL6010-R-NM or Dragon 433MHZ (EUR/APR)<br>DLL6010-R-NM or Dragon 910MHZ (USA) | Depending on local governmental regulations, one of the scanners should be used. |
| Base station | OM6010-R | |
| Laser safety class | 2 (IEC 825-1 / CDRH) | |
| Drop resistance on concrete | 1.5 m | |
| Scanner weight | 350 grams | |
| Scanner dimensions | 203x11x69 | |
| Communication | RS232 300…19200 baud | |
| Base station dimensions | 185 x 115 x 104 mm (without antenna) | |
| Base station weight | 600 grams | |
| Working frequency | 433 MHz (Europe & Asia)<br>910 MHz (America's) | |
| Range | ca. 50 m | |

### 4.3     Tray trolley support

The Setup Assistant application software supports the following trolleys and feeders:

- A-series Tray trolley PA2681/00

- AQ Tray trolley PA2681/00

- M-Series Tray stacker PA 2696/29[1]

Most of the functions of Setup Assistant are similar for trays and reels. In tab 2 the differences are explained.

### 4.4     Loading Unit

Offline setup for: A-series

There are 2 different models loading units:

- PA 2090/20, PA 2090/26 delivered before 1 May 2005

- PA 2090/21 delivered after 1 May 2005.

Setup Assistant only supports the PA2090/21 Loading Unit

Loading unit (LU) characteristics:

- One scanner

- SA controller

- Barcode printer, optional

- Touch screen Monitor (1024x768)

- Keyboard and mouse

- Network support, optional

**Loading Unit**

### 4.5     Default supported feeders and tray's

SA distinguishes feeders of the following types:

- Intelligent feeders: ITF-2, ITF-3 and TTF

- Non-intelligent feeders that have to be checked. (Also 'feeder partner products' meaning non-intelligent feeders that have the mechanical and electrical (but not communication-) interface line an ITF feeder has and can be mounted on one of the supported feeder trolleys)

- Non-intelligent feeders that do not have to be supported.

**NOTE:    Per non-intelligent feeder type the support (checked or not checked) can be configured. For more information about SA configuration refer to the software section of this manual.**

---

[1] *PA 2699/26 Double Shuttle Tray Sequencer is not supported*

TAB 1 General

*Assembleon*

The default supported feeders and trays are listed on the following pages.

| Supported feeders and trays by Setup Assistant | | | | | |
|---|---|---|---|---|---|
| Feeder/tray name | Spliceable | Refillable | Packaging | Intelligent | Multilane |
| ITF2 | TRUE | FALSE | TAPE | TRUE | FALSE |
| ITF | TRUE | FALSE | TAPE | TRUE | FALSE |
| itf_0201 | TRUE | FALSE | TAPE | TRUE | FALSE |
| itf2_08 | TRUE | FALSE | TAPE | TRUE | FALSE |
| itf2_08s | TRUE | FALSE | TAPE | TRUE | FALSE |
| itf2_12 | TRUE | FALSE | TAPE | TRUE | FALSE |
| itf_12sv | TRUE | FALSE | TAPE | TRUE | FALSE |
| itf_12cv | TRUE | FALSE | TAPE | TRUE | FALSE |
| itf2_16 | TRUE | FALSE | TAPE | TRUE | FALSE |
| itf2_24 | TRUE | FALSE | TAPE | TRUE | FALSE |
| itf2_32 | TRUE | FALSE | TAPE | TRUE | FALSE |
| itf2_44 | TRUE | FALSE | TAPE | TRUE | FALSE |
| itf2_56 | TRUE | FALSE | TAPE | TRUE | FALSE |
| itf3_04 | TRUE | FALSE | TAPE | TRUE | FALSE |
| itf3_08 | TRUE | FALSE | TAPE | TRUE | FALSE |
| TTF | TRUE | FALSE | TAPE | TRUE | TRUE |
| ttf_08 | TRUE | FALSE | TAPE | TRUE | TRUE |
| TBF | FALSE | TRUE | BULK | FALSE | TRUE |
| tbf2_c0201 | FALSE | TRUE | BULK | FALSE | TRUE |
| tbf2_c0402 | FALSE | TRUE | BULK | FALSE | TRUE |
| tbf2_r0402 | FALSE | TRUE | BULK | FALSE | TRUE |
| tbf2_c0603 | FALSE | TRUE | BULK | FALSE | TRUE |
| tbf2_r0603 | FALSE | TRUE | BULK | FALSE | TRUE |
| tbf2_c0805t060 | FALSE | TRUE | BULK | FALSE | TRUE |
| tbf2_r0805 | FALSE | TRUE | BULK | FALSE | TRUE |
| tbf2_melf0604 | FALSE | TRUE | BULK | FALSE | TRUE |
| BQ23X23 | FALSE | TRUE | TRAY | FALSE | TRUE |
| BQ28X28 | FALSE | TRUE | TRAY | FALSE | TRUE |
| CQ28-52 | FALSE | TRUE | TRAY | FALSE | TRUE |
| CQ44-84 | FALSE | TRUE | TRAY | FALSE | TRUE |
| CQ52-100 | FALSE | TRUE | TRAY | FALSE | TRUE |
| CQ68 | FALSE | TRUE | TRAY | FALSE | TRUE |
| CQ68-132 | FALSE | TRUE | TRAY | FALSE | TRUE |
| CQ84-164 | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQ10X10 | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQ10X10H | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQ14X14 | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQ14X14H | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQ14X20 | FALSE | TRUE | TRAY | FALSE | TRUE |

TAB 1 General

**Assembleon**

| Supported feeders and trays by Setup Assistant | | | | | |
|---|---|---|---|---|---|
| Feeder/tray name | Spliceable | Refillable | Packaging | Intelligent | Multilane |
| MQ14X20H | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQ28X28 | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQ28X28H | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQ32X32 | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQ40X40 | FALSE | TRUE | TRAY | FALSE | TRUE |
| PQ100 | FALSE | TRUE | TRAY | FALSE | TRUE |
| PQ132 | FALSE | TRUE | TRAY | FALSE | TRUE |
| PQ164 | FALSE | TRUE | TRAY | FALSE | TRUE |
| PQ196 | FALSE | TRUE | TRAY | FALSE | TRUE |
| PQ244 | FALSE | TRUE | TRAY | FALSE | TRUE |
| PQ52 | FALSE | TRUE | TRAY | FALSE | TRUE |
| PQ68 | FALSE | TRUE | TRAY | FALSE | TRUE |
| PQ84 | FALSE | TRUE | TRAY | FALSE | TRUE |
| TQ05X05 | FALSE | TRUE | TRAY | FALSE | TRUE |
| TQ07X07 | FALSE | TRUE | TRAY | FALSE | TRUE |
| TQ10X10 | FALSE | TRUE | TRAY | FALSE | TRUE |
| TQ12X12 | FALSE | TRUE | TRAY | FALSE | TRUE |
| TQ14X14 | FALSE | TRUE | TRAY | FALSE | TRUE |
| TQ14X20 | FALSE | TRUE | TRAY | FALSE | TRUE |
| TQ20X20 | FALSE | TRUE | TRAY | FALSE | TRUE |
| TS06X16 | FALSE | TRUE | TRAY | FALSE | TRUE |
| TS08X20 | FALSE | TRUE | TRAY | FALSE | TRUE |
| TS10X20 | FALSE | TRUE | TRAY | FALSE | TRUE |
| WP203X03 | FALSE | TRUE | TRAY | FALSE | TRUE |
| WP205X05 | FALSE | TRUE | TRAY | FALSE | TRUE |
| WP206X06 | FALSE | TRUE | TRAY | FALSE | TRUE |
| WP207X06 | FALSE | TRUE | TRAY | FALSE | TRUE |
| WP207X07 | FALSE | TRUE | TRAY | FALSE | TRUE |
| WP213X10 | FALSE | TRUE | TRAY | FALSE | TRUE |
| PB23X23 | FALSE | TRUE | TRAY | FALSE | TRUE |
| PB27X27 | FALSE | TRUE | TRAY | FALSE | TRUE |
| PB35X35 | FALSE | TRUE | TRAY | FALSE | TRUE |
| WP405X05 | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQFP100 | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQFP132 | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQFP164 | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQFP160 | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQFP168 | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQFO196 | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQFP244 | FALSE | TRUE | TRAY | FALSE | TRUE |

TAB 1 General

**Assembleon**

| Supported feeders and trays by Setup Assistant | | | | | |
|---|---|---|---|---|---|
| **Feeder/tray name** | **Spliceable** | **Refillable** | **Packaging** | **Intelligent** | **Multilane** |
| MQFO052 | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQFP068 | FALSE | TRUE | TRAY | FALSE | TRUE |
| MQFP084 | FALSE | TRUE | TRAY | FALSE | TRUE |

TAB 2 User

# Option Manual Setup Assistant Tab 2 user

## Table of Contents

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*Assembleon*

# CHAPTER 1   Operating Principles

Setup Assistant (successor of SVS Pro and also referred to as SA) is a system to verify and prepare the feeder or tray on trolley and/or banks setup of the placement machines in a production line. SA ensures the right components are installed on the right position of the machine.

SA guides the user to set up the placement machine with the appropriate components for a particular production run. It advises the operator where to place a programmed feeder. When a programmed feeder is placed on the machine it is automatically recognized by SA.
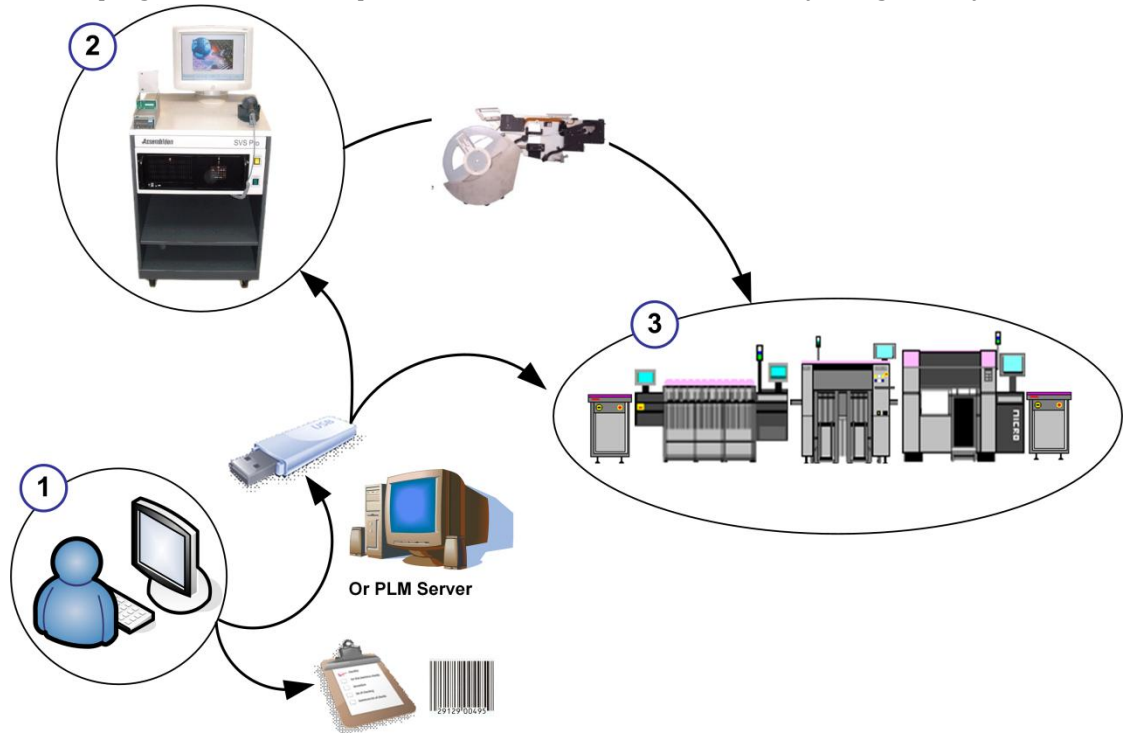


**Setup assistant way of working**

1. Production preparation. Placement program, component list and barcodes are made. If PLM is used, these are loaded into the PLM server.
2. Offline preparation of setup. With the placement program trolley and feeders loaded. Setup Assistant indicates where which component should be placed on a trolley.
3. Production. Offline prepared setup is verified with the placement program, if PLM is used, the program comes from PLM. During production SA will monitor the amount of components available and give feedback to the operator.
   Setup Assistant can also guide a new setup on the placement machine (Lite mode), however this will take extra changeover time compared to offline preparation.

## 1.1   Auto Detection of Events

Setup Assistant detects the following events:
1. Feeder trolley insertion.
2. Feeder trolley removal .
3. Intelligent feeder insertion.
4. Intelligent feeder removal.

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## 1.2  Checks

Setup Assistant performs following checks:

At feeder trolley insertion:

- Initial checks. Check process program name (case-insensitive), feeder trolley position against the values the feeder trolley was setup with.
  Check trolley type.
- Check of feeder memory. If initial checks are correct the system will check the feeder memories contents against the process program used by the machine and list all mismatches. If mismatches are found Setup Assistant directs the user in correcting the problem. These feeders must be exchanged or reloaded (in the order indicated by Setup Assistant, left to right). Skip of positions is possible (feeder will be added at the end of the list again).

At intelligent feeder insertion:

- A check is done of the data in the feeder memory against expected values from the process program when an intelligent feeder is inserted:
  - o  Part number
  - o  Feeder type

On machine power up the same check is performed as for feeder trolley insert.

**NOTE:**  **Non-intelligent feeder insert or removal can never be detected by the system.**

## 1.3  Feeder setup check

Setup Assistant will check the feeder setup partly or as a whole at the following events:

| Feeder setup check consists of: | | | |
|---|---|---|---|
| **Event** | **Intelligent feeder** | **Non-intelligent feeder** | **Scope** |
| Splicing | Scanned part number vs. current in feeder memory | Scanned part number vs. current in feeder trolley memory | Feeder spliced |
| Process program change on the machine | Feeder memory vs. process program | Trolley memory vs. process program | Entire feeder setup |
| Feeder insert | Feeder memory vs. process program | See: loading a non-intelligent feeder | Feeder inserted |
| Feeder removal | Memory of removed feeder vs. process program | Not applicable | Feeder position where the feeder was removed |
| Feeder enable (on machine) | Feeder memory vs. process program | Trolley memory vs. process program | Feeder enabled |
| Feeder trolley insert | Feeder memory vs. process program | Trolley memory vs. process program | All feeders in the trolley |
| Feeder trolley removal | Memory of feeders on removed feeder trolley vs. process program | Were partnumber(s) on this trolley used in the process program | All feeder positions concerned |
| Loading a non-intelligent feeder | Not applicable | Scanned part number vs. process program | Feeder loaded |
| Power up / enable SA | Feeder memory vs. process program | Trolley memory vs. process program | Entire feeder setup |
| Operator initiative | Scanned part numbers vs. feeder memory | Scanned part numbers vs. trolley memory | Entire feeder setup |
| Machine request at error recovery and production start | Feeder memory vs. process program | Trolley memory vs. process program | Entire feeder setup |
| Expiration date passed | Feeder memory – date setting of controller | Trolley memory – date setting of controller | Entire feeder setup |

TAB 2 User

# CHAPTER 2    SA Graphical User Interface (GUI)

The graphical user interface of the Setup Assistant reveals a lot of important information and enables configuring and working with SA. The GUI can be seen on different systems:
- Via VGA screen (mouse and keyboard) connected to a SA system controller.
- Via the GUI of a placement machine (not on MG machines)
- Via the Loading Unit screen.

The GUI looks the same in all cases (except for some details).
It is divided into the following panels:
- **Title panel ①:** Shows general information of the system (such as process program, trolley type). If SA is running on a machine the title panel of that machine is shown. On the Loading Unit the following is shown:
    o the selected process program
    o In case a trolley is selected: the trolley type is shown on the first line.
    o In case a trolley is connected:  the process program for which the trolley is selected and the trolley type are shown on the second line.
- **Navigation tabs ②:** To switch between the different functional environments of the graphical user interface: Required setup, Actual setup, Alarms, Setup status, Replenish, Legend and Configuration (hide or make visible by pressing: Ctrl + Shift +c).
- **Command panel ③:** Contains main buttons for loading and clearing programs, edit settings. (un)loading of feeders, splicing etc.
- **Sub navigation ④:** To switch between the available hardware devices (Trolley1-4, Feeder, All) within a functional environment.
- **Information panel ⑤:** Shows the information of a functional environment (such as feeder information, errors & warnings, trolley setup,…).
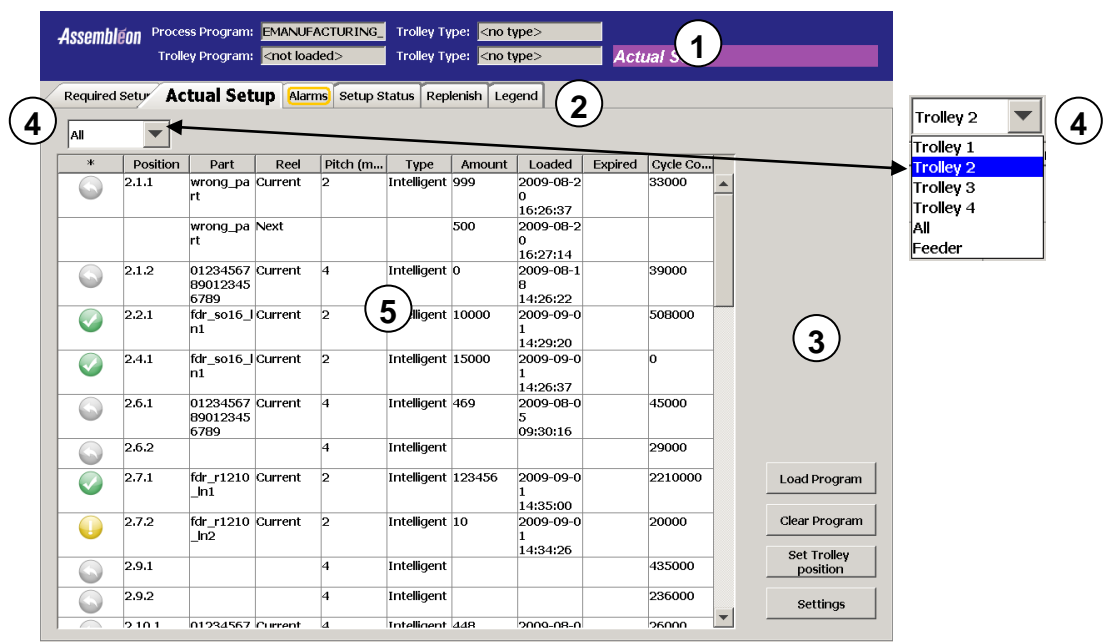


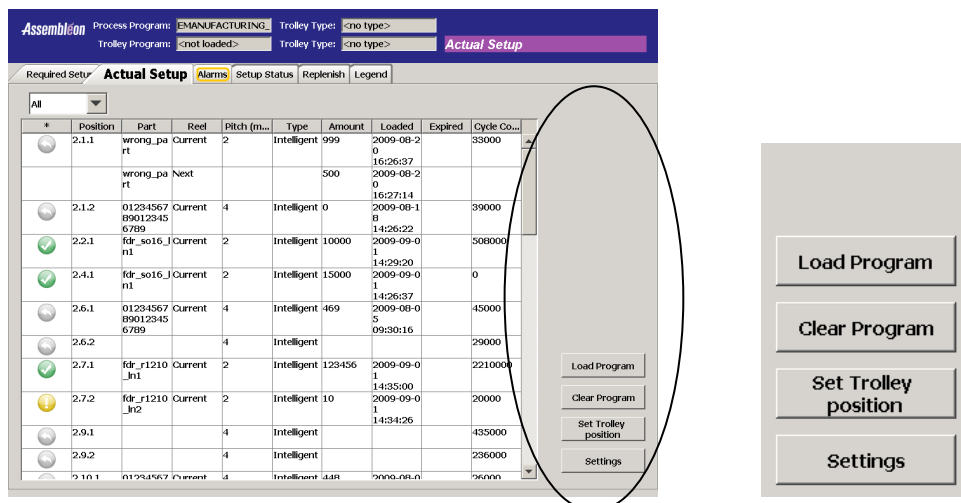**Screen lay-out of User Interface**

## 2.1   Navigation tabs

With the Navigation tabs different screen information can be presented. The tab with bold characters is the active screen.

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**Navigation tabs (Actual setup is active)**

## 2.2 Command panel

Depending on the selected options in the navigation panel different commands will be visible and can be selected.



**Command panel example**
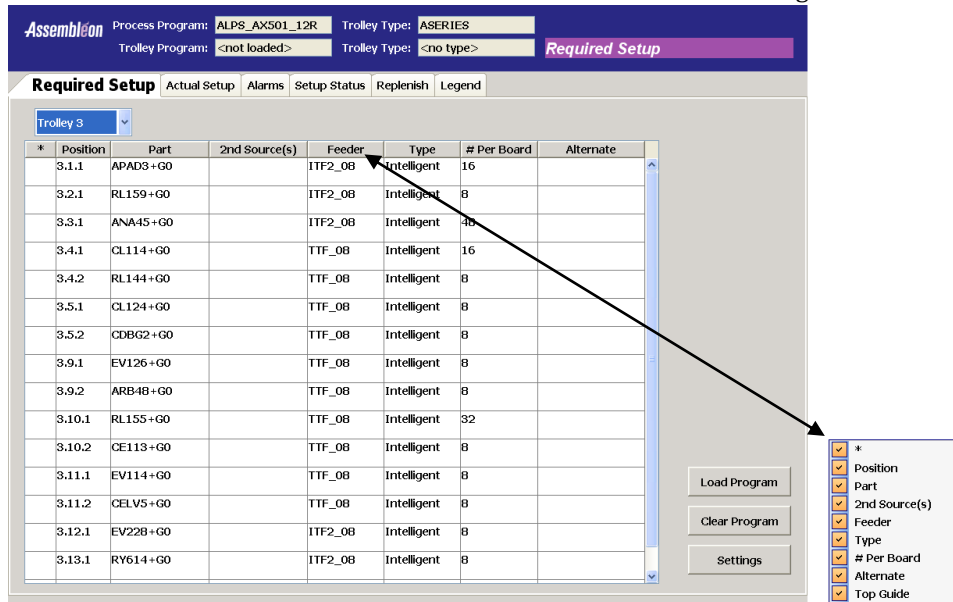
| Command panel functions | | |
|---|---|---|
| **Navigation tab** | **Commands** | |
| Required setup | Load program (Only on Loading Unit) | To prepare a trolleys for a process program. If PLM is used, then depending on the configuration setting the program can be loaded from disk or PLM, or only from PLM (the central database) |
| | Clear program | Clears the required setup. |
| | Set trolley position (Only on Loading Unit) | To prepare a trolley for a certain position for a certain process program. |
| | Settings | Set SA to Strict, Loose (warnings for family setup) or Loose (no warnings for family setup). The new setting becomes immediately active en overrules the configuration setting temporarily. |
| | Print Report | This option allows printing the actual setup, required setup and errors. |
| Actual setup | Load program | Load the placement program for which the setup is needed (only on Loading Unit) |
| | Settings | Same as Settings in Required Setup |
| *On feeder position selection (feeder is* | Splice | To enable the splice procedure. After spicing a reel the new component data must be loaded in the feeder (or trolley) memory |

TAB 2 User

**Assembleon**

| Command panel functions | | |
|---|---|---|
| **Navigation tab** | **Commands** | |
| *Used ✓ or in Error ✗)* | Show info | To display the detailed part information on the related feeder position |
| | Unload | To remove all component data from the feeder memory |
| On feeder position selection that is Not used ⊙ in the placement program. | Splice, show info, unload | Same as above for Used feeder position. Visible in case the feeder position is loaded. |
| | Set pitch | To set the correct tape index (overruled in case Automatic Pitch Programming is used) |
| | Load | When there is no material load on the selected position the loading procedure can be started with this button. To load the component data in the feeder (or trolley) memory. |
| *On trolley connection & selection* | Clear trolley | To remove all component and feeder data from the trolley (TCB). In case of a feeder trolley also the feeder information in all feeders are cleared. |
| Alarms | Splice, Unload | Same as above for Used feeder position. Visible in case the feeder position is loaded. |
| | Run empty | Press this button to run the feeder empty. When the feeder is empty production will stop on a '*feeder empty*' error. |
| | Re-Splice | Action where a new reel/tape is re-spliced to the current reel/tape at the selected position. The existing spliced information is overwritten |
| | Splice Passed | In case the machine is running with splice detection and the machine stops while detecting this splice but the splice was never found this button can be used |
| Setup status | - | - |
| Replenish | - | - |

TAB 2 User

### 2.2.1 Required Setup

This screen shows the reuired setup. The columns can be selected with a mouse click on the column titles. With the mouse the column order and sizes can be changed.
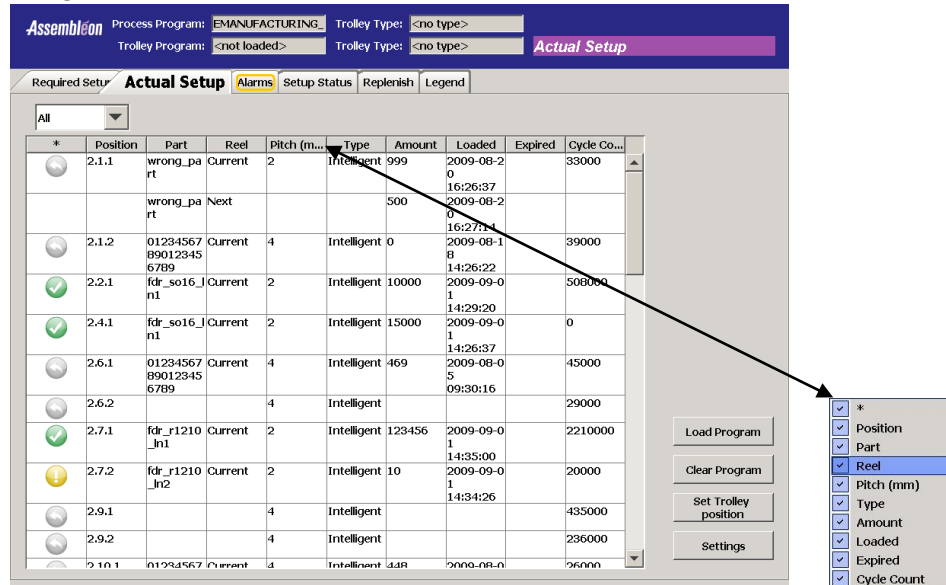


**SA Required Setup**          **uncheck the hidden columns**

| Required setup screen | | |
|---|---|---|
| **Column** | | **Explanation** |
| * | Green dot | Green dot: The related feeder/tray position is required for the selected process program. The setup for this position is correct |
| | Gray dot | Gray dot: The related feeder/tray position is not used for the selected process program. |
| | Crossed red dot | Crossed red dot: Setup error for the related intelligent feeder |
| | Yellow dot | Yellow dot: Setup warning for the related feeder/tray (e.g. feeder low) |
| | Red dot | Red dot: Hardware error for the related intelligent feeder |
| | Black dot | Black dot: Feeder maintenance for the related intelligent feeder is required (notifications will only be shown in case the Feeder Maintenance Tool is installed. This option is not included in Setup Assistant) |
| Position | 3.6.1 | Feeder/Tray position. The notation is X.Y.Z<br>3.6.1: trolley/bank 3, feeder/tray position 6 on lane 1. |
| Part | | Part number required for this position |
| Feeder | ITF2_08 | The feeder/tray type used for the tape. |
| Support | Intelligent / dumb | Explains the loaded feeder. Possible feeders can be Intelligent or Dumb |
| Alternate | | This shows if a position/part number has an alternate feeder or tray |
| Top Guide | Left/Right | Information for top guide setting , note: there is no electrical detection of this setting. |

TAB 2 User

### 2.2.2 Actual Setup

The Actual Setup screen shows the current setup for the selected placement machine.
The columns can be hidden or made visible with a right mouse click on the column headers and (un)checking the checkbox. With the mouse the column order and sizes can be changed.



**SA Actual Setup**                                                                       **uncheck the hidden columns**

| Actual setup screen | | |
|---|---|---|
| **Column** | | **Explanation** |
| * | | The dot indication is in all screens the same. Refer to §2.2.1 or the Legend Tab in the GUI |
| Position | 3.6.1 | Feeder/Tray position. The notation is X.Y.Z  C stands for current tape used 3.6.1: trolley/bank 3, feeder/tray position 6 on lane 1. |
| Part | | Part number currently loaded on this position |
| Reel | Current / Next | In case the tape is spliced here becomes visible what the current and the next (spliced) tape is. |
| Pitch (mm) | 4 | Shows the used pitch in mm (unless Automatic pitch programming is used on a machine, then this pitch will be ignored) |
| Type | Intelligent / dumb | Explains the loaded feeder. Possible feeders can be Intelligent or Dumb |
| Amount | 33388 | Amount of components left on the feeder/tray |
| Loaded | Yyyy-mm-dd hh:mm:ss | Date and time stamp when the feeder is loaded with the partnumber |
| Expired | Yyyy-mm-dd hh:mm:ss | Date and time stamp when material expires. Usage of this information is optional, it can be configured. |
| Cycle count | integer | Counts the total nr. of indexes made during the lifecycle of the feeder. This information is present in the feeder's memory. On the user interface of the machine a value rounded  (down) to thousands is shown. |

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### 2.2.3 **Alarms**

On the Alarms tab all SA errors and warnings can be found.

- Warning (The Alarms tab shows a yellow circle): The machine will continue running, but the operator should take attention of the warning. An unattended warning might result in an error.
- Error: ((The Alarms tab shows a red circle): An error will stop production on a placement machine until the error is solved.



**Error (red) and warning (yellow)**
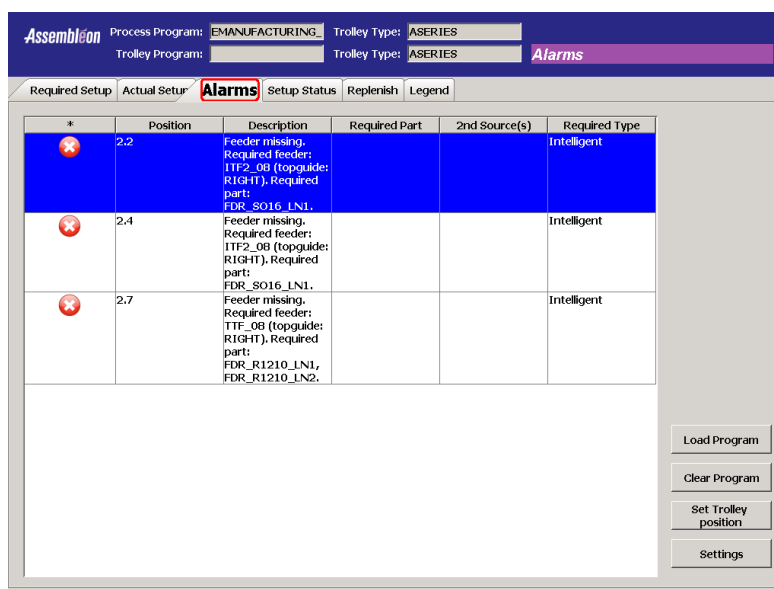


**SA Alarm List**

| Column | | Explanation |
|---|---|---|
| * |  | Only the feeders in error are shown here. Crossed red dot: Setup error for the related intelligent feeder |
| |  | Red dot: Hardware error for the related intelligent feeder |
| Position | 3.6.1 | The feeder/tray position where the problem/alarm is related to. The notation is X.Y.Z 3.6.1: trolley/bank 3, feeder/tray position 6 on lane 1. |
| Description | | Is the error or warning that is related to the position |
| Required part | | Indicates the part required for setup. |
| 2nd sources | | If available the second sources are shown. |
| Required type | Intelligent / dumb | Explains the loaded feeder. Possible feeders can be Intelligent or Dumb |

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## 2.3 Setup Status

To give more details on the feeders, trays and the quantities feeder conditions and possible installed splices an additional "Setup Status" screen can be used. It is also possible to see which tapes are low on quantities, empty or which feeders have hardware errors.
The screen is automatically refreshed every 30 seconds.

Process Program: Roland-pp15   Trolley Type: <no type>   Machine: AX2-SA67043
Trolley Program: <not loaded>   Trolley Type: <no type>   **Setup Status**

Required Setup | Actual Setup | Alarm | **Setup Status** | Replenish | Legend | Configuration

| | Trolley1 | | | Trolley2 | | | Trolley3 | | | Trolley4 | | | Trolley5 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fdr | Lane 1 | Lane 2 | Fdr | Lane 1 | Lane 2 | Fdr | Lane 1 | Lane 2 | Fdr | Lane 1 | Lane 2 | Fdr | Lane 1 | Lane 2 |
| 1 | | | 1 | | | 1 | 65078 | | 1 | 62730 | | 1 | 65078 | |
| 2 | 63054 | | 2 | 65040 | | 2 | | | 2 | | | 2 | | |
| 3 | | | 3 | | | 3 | | | 3 | 1747... | 8354... | 3 | 11606 | |
| 4 | | | 4 | | | 4 | | | 4 | | | 4 | | |
| 5 | | | 5 | | | 5 | | | 5 | | | 5 | | |
| 6 | | | 6 | | | 6 | | | 6 | 630 | | 6 | 0 | 34851 |
| 7 | | | 7 | | | 7 | | | 7 | | | 7 | | |
| 8 | 1000 | | 8 | | | 8 | | | 8 | | | 8 | | |
| 9 | | | 9 | | | 9 | 65040 | | 9 | 65040 | | 9 | | |
| 10 | | | 10 | 62730 | | 10 | | | 10 | | 1000 | 10 | | |
| 11 | 1000 | | 11 | | | 11 | | | 11 | | | 11 | 0 | |
| 12 | 6520 | | 12 | | | 12 | | | 12 | | | 12 | | |
| 13 | 10000 | | 13 | | | 13 | | | 13 | | | 13 | | |
| 14 | | 9015... | 14 | | | 14 | | | 14 | | | 14 | | |
| 15 | | | 15 | | | 15 | 65078 | | 15 | 65040 | | 15 | | |
| 16 | 62947 | | 16 | 62730 | | 16 | | | 16 | | | 16 | | |
| 17 | | | 17 | 8374 | | 17 | | | 17 | 1000 | | 17 | | |
| 18 | | | 18 | | | 18 | | | 18 | | | 18 | | |
| 19 | | | 19 | | | 19 | | | 19 | | | 19 | | |
| 20 | | | 20 | 67472 | 9819... | 20 | | | 20 | | | 20 | | |
| 21 | | | 21 | | | 21 | | | 21 | | | 21 | | |
| 22 | | | 22 | | | 22 | | | 22 | | | 22 | | |
| 23 | | | 23 | | | 23 | 65040 | | 23 | 65078 | | 23 | 65104 | |
| 24 | | | 24 | 62730 | | 24 | | | 24 | | | 24 | | |
| 25 | 1000 | | 25 | | | 25 | | | 25 | 965 | | 25 | | |
| 26 | | | 26 | 65361 | | 26 | | | 26 | | | 26 | | |
| 27 | | | 27 | | | 27 | | | 27 | 10 | | 27 | | |

**Color Legend**
OK
Low
Short / Refill
Empty
Hardware Error
Splice Installed

**Splice Detection**
BA Camera
Empty Pockets

**SA Setup Status**

| Feeder State | | Explanation |
|---|---|---|
| OK (White) | # | No actions required or applicable for this tape. The number indicates the amount of components in the feeder. |
| Low (Yellow) | # | The quantities of components in the tape come to a critical low value. It is suggested to prepare to splice the tape or refill the tray or stick with the correct value. The machine will not stop on this state |
| Short/Refill (Green) | # | The length of the tape becomes critical low to make a splice possible. The machine will stop on this message. It is possible to "run empty", "splice/refill" or "unload". When selecting "run empty' the machine will continue until the status "Empty" is reached. |
| Empty | | The quantities (of components) in the feeder are 0. In case the actual quantity is incorrect and the tape or tray is half full and to allow the machine to continue picking from the feeder or tray use the *'Snooze'* function on the scanner. |
| Splice Installed | | A splice is installed on the tape feeder. Monitor the feeder to check when the splice passes the feeder. |
| Splice Detecting (Blue) | # | Splice detection is active for this tape feeder. SA is looking for the empty pockets that represent the splice |
| Hardware Error | | Setup Assistant detects a hardware error for this feeder. Replace the feeder for maintenance |

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*Assembleon*

As soon as a splice has been installed, the quantity field will contain a triangular mark. This is used to indicate the method of splicing for the next coming splice for each reel:

Splice Detection
▶ BA Camera
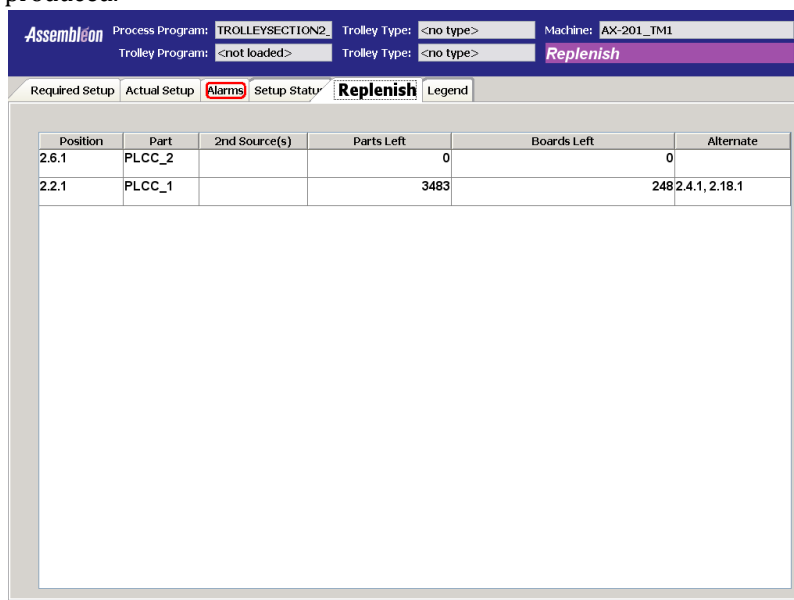Empty Pockets

▌ 1000

Quantity                     Component specific method of splice indicators

In the case shown on the left (quantity is 1000) the upper triangle indicates that the next method will be BA Camera splice detection.

If the trolley is removed from the machine then all information about next splice method is lost.

### 2.3.1 Replenish overview

This screen can be used to quickly see a list of what (lane on) feeder/tray on which trolley or bank will first run empty. It will also show the current amount of boards that can be produced.



**SA Replenish**

| Column | | Explanation |
|---|---|---|
| Position | 3.6.1 | The feeder/tray position where the part are running low, notation is X.Y.Z 3.6.1: trolley/bank 3, feeder/tray position 6 on lane 1. |
| Part | | Part number currently loaded on this position |
| 2nd sources | | If available the second sources are shown. |
| Parts Left | # | Amount of parts left |
| Boards left | # | Maximum amount of boards that can be produced |
| Alternate | 2.4.1, 2.18.1 | Comma separated list of all alternate positions of this position. |

## 2.4   Setup Assistant messages

| SA messages on scanner / GUI | | |
|---|---|---|
| **Main message** | **Location/part info** | **Action / meaning** |
| Feeder missing: | Position 1  4.1<br>Part  T1-F04-L1 | Insert the proper feeder on the required location. |
| Setup OK | AX5_SVSPR: 2N | This message is generated when all feeders/trolleys are in the correct place. The PP name is truncated according to a pre-defined format. |
| Trolley 1 missing | Insert trolley | Insert the required trolley |
| Wrong partnumber | Position 1  4.1<br>Required  T1-F04-L1 | Remove the feeder from the indicated position and place a feeder with the proper part number on the trolley. |
| Feeder Low | Position 1  4.1<br>Part  T1-F04-L1 | The feeder on the indicated position is running low on parts. Splice the reel. |
| Feeder empty | Position 1  4.1<br>Part  T1-F04-L1 | The feeder is empty. Replace the feeder. |

TAB 2 User

*Assembleon*

# CHAPTER 3   Way of working

Setup Assistant influences the work flow during (preparation for) production:
- Real-time splicing of intelligent feeders
- Change over with Setup Assistant
- Shift change

## 3.1   Off-line preparation of a feeder set-up

Off-line preparation of the feeder setup:
1. Load the process program on the loading unit (from , USB stick, diskette, CD/Rom, PLM).
2. Optional: Print a list of components required for the process program.
3. Connect a trolley to the Loading Unit
4. Via warnings and errors the Setup Assistant informs the operator about mismatches in the existing setup and the required setup. Follow the instructions for arranging and loading feeders until all errors are cleared.
   SA automatically detects if a feeder is mounted on the correct position with the correct components and generates an error in case of a mismatch.
5. SA displays:  "Set-up OK"

The trolley can now be used for a production with the placement program used to setup the trolley.

## 3.2   Change over to another product with Setup Assistant

At the start of a product change over SA compares the current process program with the new process program.

In case there are no differences in feeder setup, the process program content and name are stored in the feeder trolley. This allows unattended continuation of a change over to a different process program with the same setup.

If there are differences in the feeder set-up, an error is raised to prevent production. Either
1. Insert the right (off-line prepared) feeder trolleys in the machine.
   or
2. Modify the set-up of the current feeder trolleys to match the new process program. The new process program will overwrite feeder trolley memory. Setup Assistant directs the user by listing the feeders for which the setup is wrong. These feeders must be exchanged or reloaded in the indicated order (left to right). Skip of positions is possible; the feeder will be added at the end of the list again.
   - Feeders on unused positions can be left on the machine (for non-intelligent feeders the data is not cleared from the trolley memory, intelligent feeders retain the data).
   - Non-intelligent feeders have to be rescanned before production can be started.
   - Feeders that were used in the old setup but are not used in the new setup:
     – Non-intelligent feeders: the data for this feeder in the feeder trolley memory will be cleared.
     – Intelligent feeders: data in the feeder is not erased.

**NOTE:   When on the AX machine a new PP is selected, all feeders are enabled. If feeders require disabling, it must be done each time a PP is selected (feeder disabling can be done in the AX GUI).**

### 3.3 Splicing

The on-line splicing procedure can be started in three ways:
a. The operator scans the feeder position (and lane in case of a TTF)
b. After the warning message "feeder is low on parts". Selecting this warning on the scanner starts the splicing procedure.
c. Via the GUI select a lane/position and press the *Splice* button [Splice].

Splicing procedure
1. Scan operator ID (if configured)
2. Setup Assistant indicates which part number is necessary at the indicated position.
3. Spice the reel and scan the necessary barcodes (e.g. part number, vendor code, lot number and initial quantity).
   The data is stored at the " next" positions in the feeder memory (or in case of non-intelligent feeders in the trolley memory). When the quantity of the current reel becomes zero, the next reel becomes current

### 3.4 Shift change

Generally, the operators of a new shift verify the set-up of the machine when they take it over from the former shift. With Setup Assistant it is not necessary to verify the machine set-up after a shift change as the machine will not function when the set-up is not correct. However, to support this common procedure, SA has a special rescan function to easily check the set-up of the machine. The operator scans the rescan command and then scans the part-numbers of all reels from left to right. Setup Assistant will verify the barcodes against the required set-up and will raise an error when a mismatch occurs. This procedure can be done during production; the machine will only stop when a mismatch occurs.

### 3.5 Load feeder

Feeders can be loaded with component information on the Setup Assistant Loading Unit or on a placement machine. This procedure stores the data of the component reel in the feeder memory or the trolley memory.
- Intelligent feeders (ITF2, ITF3, TTF): the scanned component information is loaded in the feeder memory. SA will detect the removal or insertion of such feeders.
- Non-intelligent feeders (such as tray component, bulk feeders, 'dump' tape and stick feeders) have no memory and therefore the component information will be loaded in the trolley memory. SA will not detect when these trays or feeders are removed or exchanged.

#### 3.5.1 Intelligent feeder
To load the component to a feeder or a trolley the load action must be selected. The load button only becomes visible when an empty feeder or an empty trolley position (and the corresponding lane) is selected. The selection can be done via barcode scanning on the trolley (in case of tray trolley) or via the touch screen or mouse on the SA GUI. When SA detects that the selected lane is empty the "Load"-button becomes available.

TAB 2 User

*Assembleon*

After pressing "Load" a window will open. Depending on the configuration settings first an "Operator ID"-dialogue then a "Load"-dialogue will be shown. The required field and the field that needs to be scanned can differ. It all depends on the configuration of Setup Assistant. It is also configurable whether fields can be entered by keyboard or by scanning barcodes or are automatically filled by the external database (iTAC or VManage).
Once all required fields have been scanned the window will close automatically and the feeder or the trolley will be loaded with the information.

| ⚠CAUTION | **CAUTION.** DO NOT REMOVE THE FEEDER FROM THE LOADING UNIT UNTIL THE FEEDER HAS BEEN COMPLETELY PROGRAMMED AND ALL THE FIELDS IN THE FEEDER CONTENT DIALOGUE SHOW CONTENTS. PREMATURE REMOVAL MAY LEAD TO A DAMAGED FEEDER. |
|---|---|

**NOTE:** **It is possible to disable keyboard entry of the feeder load screen (in that case reel information can only be scanned).**

**NOTE:** **When a barcode is scanned in the wrong fields (in case of a fixed scanning sequence instead of random barcode identifiers), select the "Cancel" button to start over.**

Once all required data is scanned the loading unit gives a position advice.
After placing the feeder at the advised position the message will disappear. When the feeder is placed in the wrong position of the trolley a new position advise will be given. This will continue until the feeder is placed on the correct location

### 3.5.2    Load non intelligent feeder

Non intelligent feeders cannot be programmed on the Loading Unit. They have to be placed on the trolley for programming because the information is stored in the memory of the trolley instead of the feeder.
For non intelligent feeder the quantity is reduced each time a PCB enters (AX-201) or leaves (AX-3/5) the machine. The system calculates from the PP how many components of that partnumber are on the PCBs.
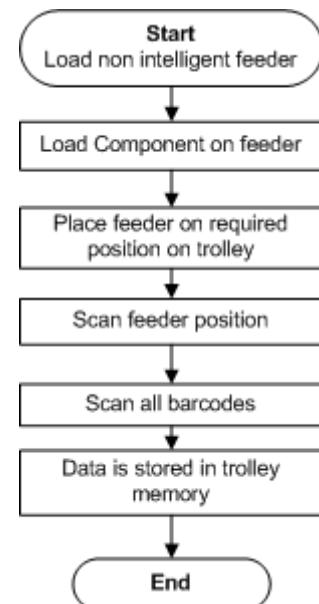


### 3.6    Unload feeders and trolleys (after Production finish)

After the orders are finished for the setup and the trolleys and feeders are removed from the machines there are several options:

- Unload a feeder (- lane) by placing the feeder on the feeder loading unit and select the "Unload"-button. When a barcode printer is used (and barcodes are defined) a label

can be printed with the remaining amount of components to be placed over the original label for another production order.

- The trolley memory can be cleared. After the trolley is connected to a loading unit the "Clear Trolley" command will erase all trolley information. This will be done for all feeders including the not used feeders.

On the Loading Unit (or in Lite mode) it is also possible to erase all feeders loaded on one trolley

## 3.7  Real-time Splicing of Intelligent Feeders

For graphical representation of the splicing procedure, see the following figure on the next page (Splice procedure).

The procedure shown represents the splice procedure initiated by position scan.

- By selecting the feeder error/warning (feeder empty or almost empty) on the scanner or touch screen, the splice procedure can be started.

In this case the position scan is not required.

**NOTE:**  **Upon successful completion of the splice procedure the information is stored as 'next' feeder contents. Information about the current product is not cleared.**

TAB 2 User

**Assembleon**
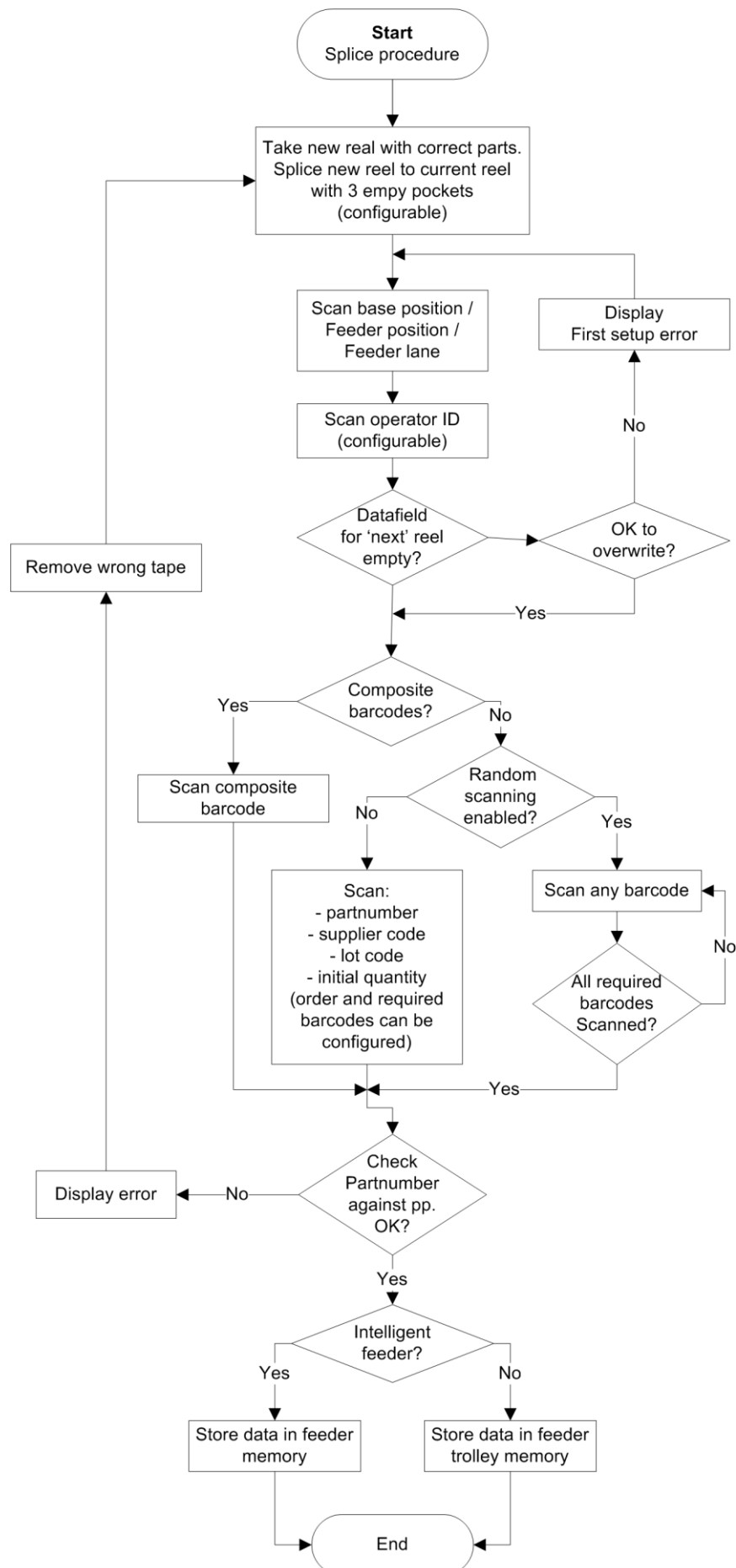
### 3.8   Use of Tray trolleys

The Setup Assistant application software supports the following trolleys:
- AQ/A-series Tray trolley PA 2681/00 (old model)
- A-series Tray trolley PA 2681/10 (new model)

Most of the functions of Setup Assistant are similar for trays and reels. This section explains the differences.

#### 3.8.1   Tray trolley configurations

The following table states the configurations of tray feeders and tray trolleys for an AX-201 machines supported by Setup Assistant.

| Machine type | Max. nr tray trolleys/machine | Max. nr pallets | Max nr trays/ pallet | PA nr |
|---|---|---|---|---|
| AX-201 | 4 | 47 | 6 | PA 2681/00 |
| AX-201 | 4 | 30 | | PA 2681/10 |

Tray positions are numbered from left to right and front to rear (see also the next figure) A magnetic pallet-position strip (1) and a tray-position strip (2) (supplied with SA for PA 2681/00) can be attached to side (1) and the top (2) of the tray feeder. Each pallet and tray position can be identified with a barcode. For the new tray trolley these strips are not required (position selection is done via user interface).
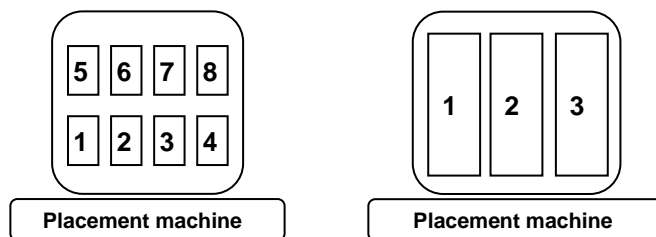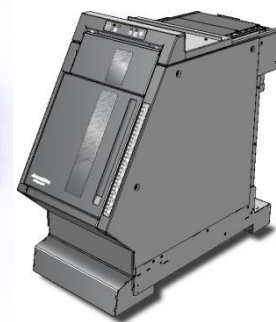


**Examples of the numbering of trays on a pallet (top view)**
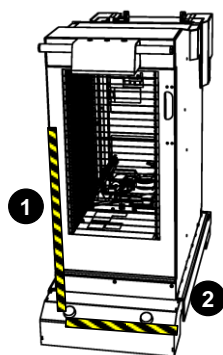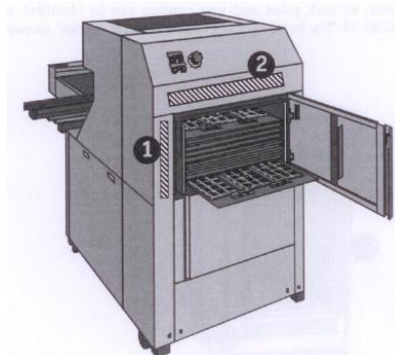


| A-Series | M-Series | A-Series |
| Old model | | No barcode strips on new model |

**Location of the magnetic barcode strips**
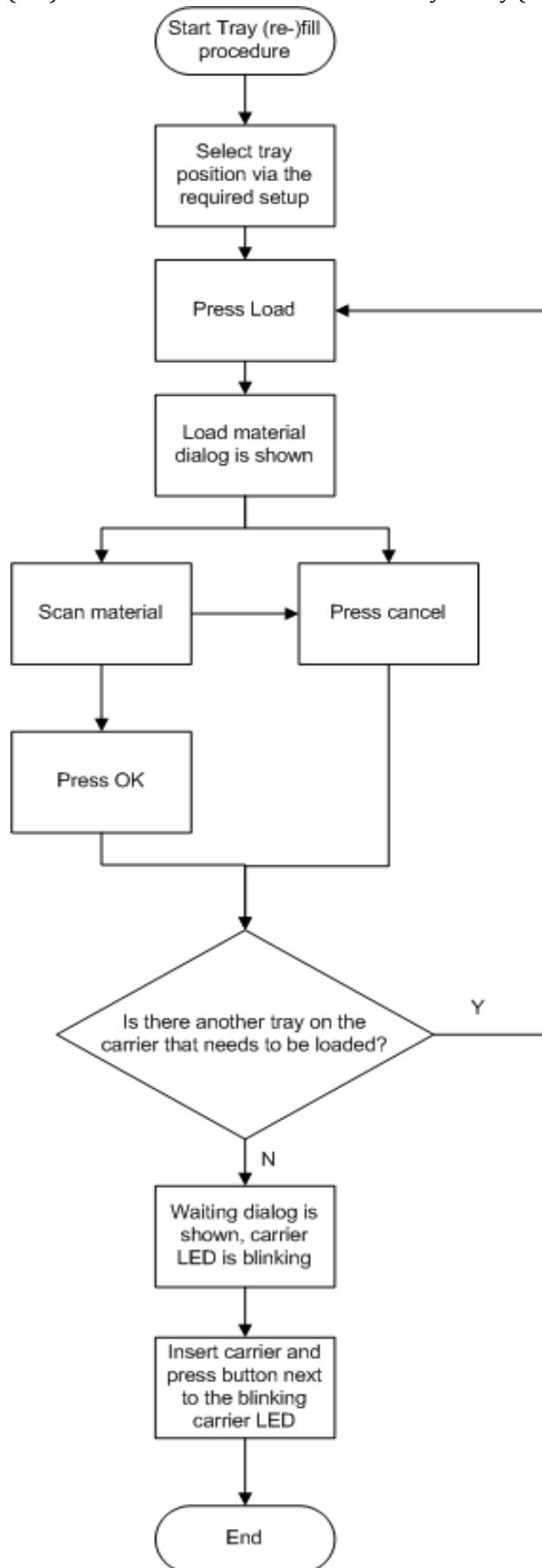
#### 3.8.2   (re)fill of a tray trolley

The book-keeping of the component usage can be divided into two workflows.
Note that only the part number is necessary in all cases. All other items can be configured to meet the needs of the production process. A refill resets the previous scan results.

TAB 2 User

**Assembleon**

Following flowchart applies to the old model PA 2681/00:
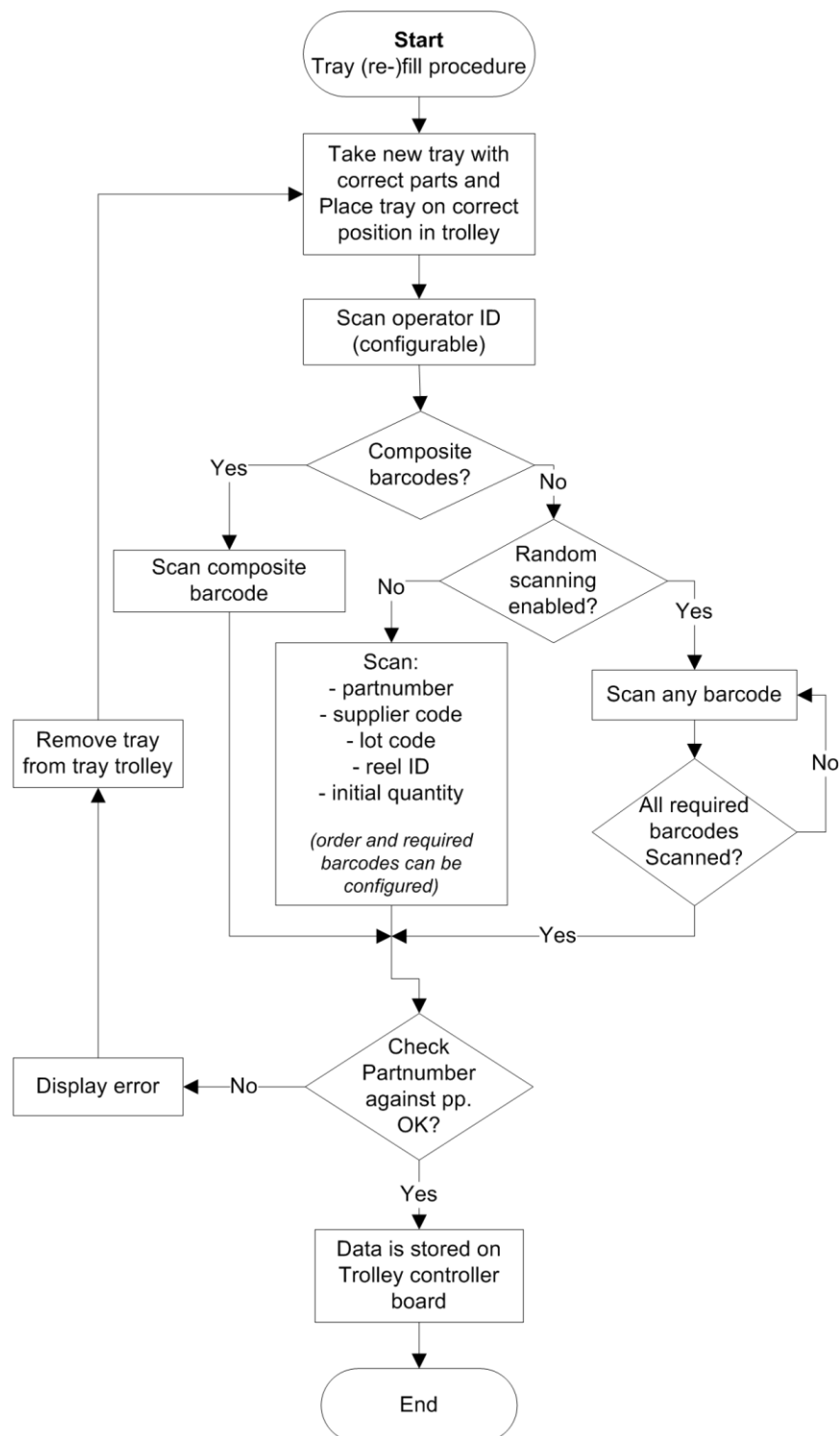
(Re-)Fill flowchart new model A-Series Tray trolley (PA 2681/10):

```
        ┌─────────────────────┐
        │   Start Tray (re-)fill │
        │      procedure         │
        └─────────┬───────────┘
                  │
        ┌─────────▼───────────┐
        │    Select tray       │
        │  position via the    │
        │   required setup     │
        └─────────┬───────────┘
                  │
        ┌─────────▼───────────┐
        │     Press Load       │◄──────────┐
        └─────────┬───────────┘           │
                  │                        │
        ┌─────────▼───────────┐           │
        │   Load material      │           │
        │   dialog is shown    │           │
        └──────┬───────┬──────┘           │
               │       │                   │
       ┌───────▼──┐ ┌──▼─────────┐        │
       │   Scan   │─▶│   Press    │        │
       │ material │ │   cancel   │        │
       └────┬─────┘ └────┬───────┘        │
            │            │                 │
       ┌────▼─────┐      │                 │
       │ Press OK │      │                 │
       └────┬─────┘      │                 │
            └──────┬─────┘                 │
                   │                       │
           ┌───────▼────────┐              │
          ╱ Is there another ╲   Y         │
         ╱  tray on the       ╲────────────┘
         ╲  carrier that needs ╱
          ╲ to be loaded?     ╱
           └───────┬────────┘
                   │ N
        ┌──────────▼──────────┐
        │  Waiting dialog is   │
        │  shown, carrier      │
        │  LED is blinking     │
        └──────────┬──────────┘
                   │
        ┌──────────▼──────────┐
        │  Insert carrier and  │
        │  press button next   │
        │  to the blinking     │
        │  carrier LED         │
        └──────────┬──────────┘
                   │
              ┌────▼────┐
              │   End   │
              └─────────┘
```

TAB 2 User

**Assembleon**

### 3.8.3    Tray support during production

During production, trays are supported much in the same way as reels.

Setup Assistant bases the calculation of the number of used components from trays on the number of produced PCBs. Components that are dropped during production are not taken into account. Production is stopped when SA calculates there are no components left. Setup Assistant can generate a warning after the minimum number components (a configured value) available on the tray trolley has been reached.

Setup Assistant cannot detect if pallets are added or removed during production.

The (re-) fill procedure should be followed to avoid errors.

For a program change-over, there are three scenarios:

1.  Program change-over where the old and new part set-up is the same. The machine continues production and the new process program name is stored on the Trolley Control Board (TCB) of the tray section (old trolley), or it is maintained by the SA controller (new trolley).

2.  Program change-over where the new program only uses a subset of the old components. The machine continues production. The data is cleared of all components that are not used any more. The process name is stored on the TCB of the tray section.

3.  Program change-over to a completely new set-up. The machine pauses and data is cleared of all components that are not used any more. Setup Assistant will generate a list of trays that do not match the new program.

**NOTE:**    **For tray trolleys the snooze function is not available.**

## 3.9   Support for Operator ID

A number of functions may require the operator to scan his operator ID. If enabled, the following functions will require an operator id to start with:

1.  Feeder splice (for intelligent feeders)

2.  (un) Load feeder (for non-intelligent feeders)

3.  Re-scan of feeders

4.  Disable SA

Scanning of the operator ID has a limited validity. When for a configurable amount of time no operator action occurred a re-scan is required (default time is 300seconds).
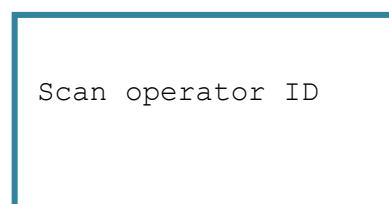
Scan operator ID

**Scan operator ID message scanner Machine - Loading unit**

**NOTE:**    **For more information about the configuration of Setup Assistant refer to the Software tab of this manual.**

### 3.10 Miscellaneous/restrictions

When the machine is in simulation mode Setup Assistant will act as if it was disabled.
Multi-lane feeders are treated as multiple single feeders with one exception: if the user is
instructed to remove a feeder from a certain location the feeder lane is not displayed.
No check is done on differences in index size of the tapes spliced. In case the same part
number is available in tapes with different index-size, these tapes cannot be spliced
physically.
For reels with more than 65535 components the initial quantity of the reel cannot be
stored in the ITF-2 and ITF-3 tape feeder. This means such reels cannot be used with Setup
Assistant.

TAB 2 User

**Assembleon**

# CHAPTER 4    Splice detection (for A-series machines)

Splice detection functionality is intended to increase the accuracy of the component countdown, by synchronizing the count at the passage of the splice.

In the situation without splice detection the component countdown in the feeder is often not in sync with the actual component count on the reel. The splice is done with a (configurable) number of pockets left empty between "current" and "next" tapes.

Splice detection will reset remaining quantities (programmed in feeder) and start counting down the new tape. In case traceability is used also the traceability data will be updated. Make sure the quantities of used reels are set correctly. Wrong quantities might cause the machine to stop or give false error or warning messages. It is possible to use "Feeder synchronization procedure" to make sure the quantities are correct.

Splice detection procedure on placement machine:

1.  Splice action is performed by operator using Setup Assistant. A (configurable) number of pockets is left empty between "current" and "next" reel. Default is 3 empty pockets. Alternatively, if BA splice detection is used, the splice is covered by splice tape over the top foil.
2.  Enable splice detection message is sent to machine, splice detection algorithm will now be activated.
3.  With empty pocket splice detection: machine starts monitoring for a configurable number of mispicks. (the intentionally left empty pockets) With BA splice dietiction" machine starts monitoring of top foil is covered by splice tape.
4.  After detection the splice a trigger is sent to Setup Assistant. The information in the feeder is updated: the current quantities are removed and the next information is now used, traceability data is updated.
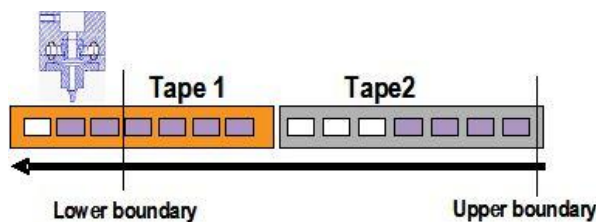


**Empty pocket splice detection**
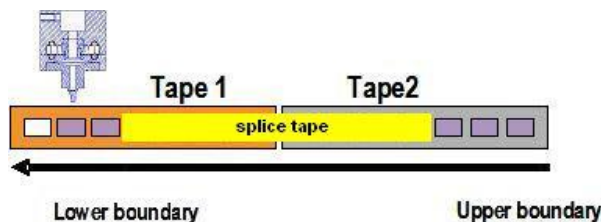


**BA splice detection (AX-301/501 only)**

> **NOTE:**    **In case Setup Assistant is not used (disabled) during production and the splice passes through the feeder the splice will NOT be detected.**

> **NOTE:**    **Splice detection requires the use of quantities. If for Setup Assistant no quantities are used splice detection will automatically be switched off.**

**NOTE:** **Splice detection (either empty pocket or BA splice detection) must be installed on a placement machine, it is not a standard option of SA.**

It is possible to configure or change the splice detection behavior (such as the amount of empty pockets for splice detection and splice detection on/off). This is done in the file splicedata.xml. For more information on this file see the Software Tab in the '*Splice detection settings*'

## 4.1 Splice not found

When a splice is missed (e.g. when the feeders are not synchronized or a splice is made without empty pockets) the splice can be manually set via the GUI: *SA →Position →Splice passed*. All information is updated: the current feeder information is removed and the next information is used, traceability data is updated.

## 4.2 Feeder synchronization procedure

When starting to use 'Splice detection' for the first time on a machine that uses previously spliced reels, there may be problems with obtaining the correct quantities. In some cases the placement machine can stop or give false Setup Assistant messages. Reason is the quantities in the used feeder are wrong.
Follow the synchronizing the feeder procedure to correctly set the quantities in the feeder.

TAB 2 User

*Assembleon*

TAB 2 User
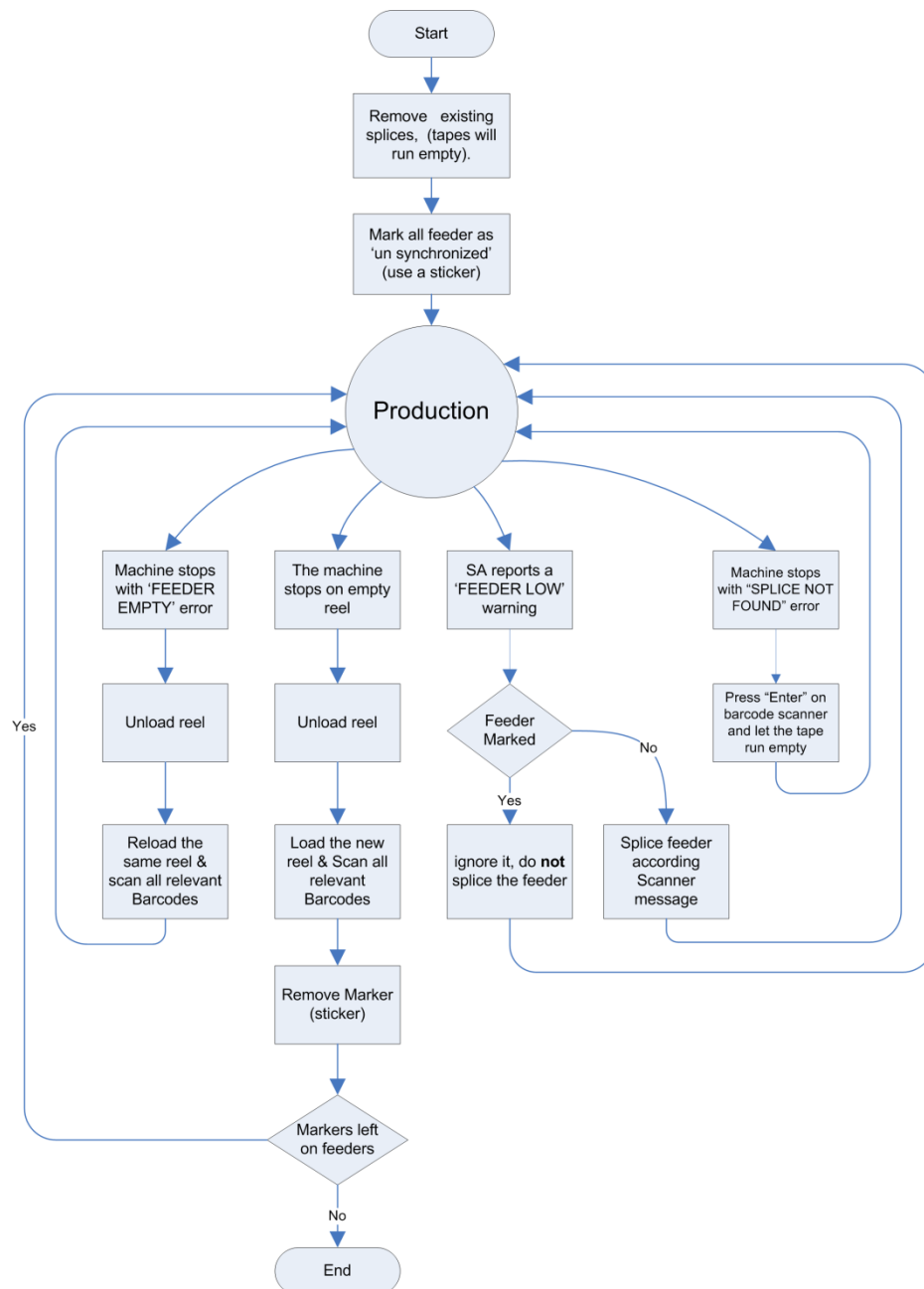
## CHAPTER 5    Loading Unit

The loading unit is intended for off-line preparation of the feeders and trolleys for production. After production has been finished and the trolleys are removed from the placement machines it can also be used to clear trolley and feeder contents and store the left-over components for next time production.
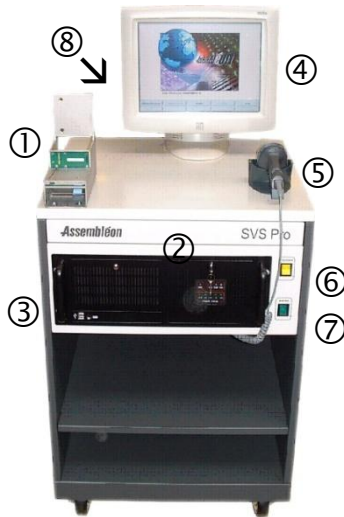


| | |
|---|---|
| 1 | Feeder loading station |
| 2 | Keyboard & mouse |
| 3 | SA controller |
| 4 | Touch screen |
| 5 | Barcode scanner |
| 6 | ON/OFF feeder loading |
| 7 | Main power ON/OFF |
| 8 | Trolley connection cable (at the rear of the LU) |

**Loading Unit**

On the Setup Assistant Loading Unit a single intelligent feeder can be mounted on the *Feeder loading station* to load a feeder with components and data. Also a trolley can be connected via the *Trolley connection cable* to prepare an entire trolley.
One trolley or one feeder can be prepared at a time.
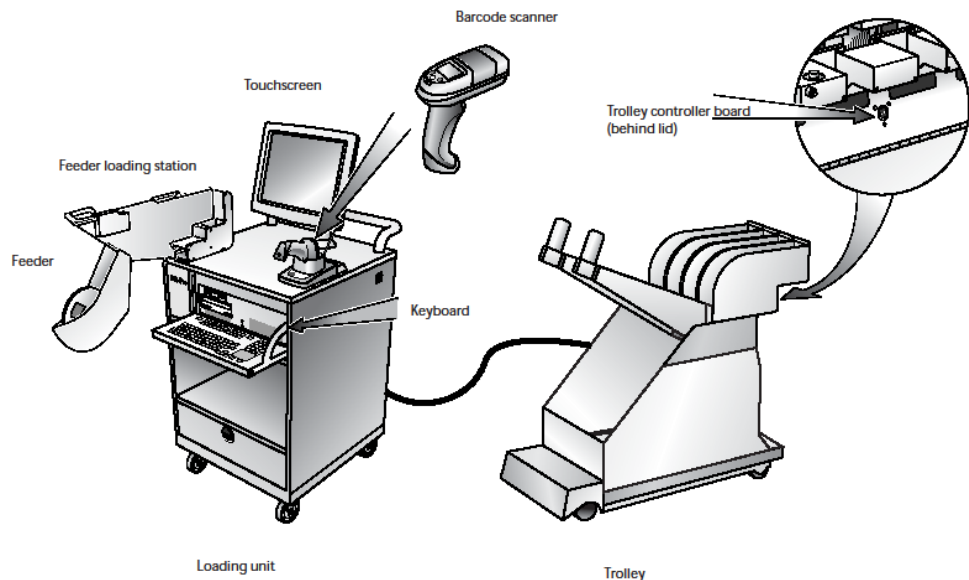


**Feeder and Trolley connected to the loading unit**

TAB 2 User

*Assembleon*



WHEN MOVING THE LOADING UNIT: STORE THE CABLES
Break or damage the cables or injuries when tripping over loose cables.
When moving the  Setup Assistant loading unit to a different location, roll up all the cables and place them behind the door in the back of the loading unit.

The SA loading unit is used for offline preparation from:

- Trolleys:
  - Load feeder/tray on trolley
  - Unload feeder/tray from trolley
  - Clear all feeder information of all feeders on trolley
  - Print out information of the trolley
- Feeders:
  - Load feeder
  - Unload feeder
  - Set index for feeder
  - Do index for feeder
  - Splice reel

## 5.1  Procedures for switching the Loading unit on and off

Switch on:

1. Make sure that there is no feeder on the loading unit.
2. Switch on the Loading unit (green switch on the front side of the LU).
3. Wait until the Setup Assistant application software becomes active.

Switch of:

1. Shut down the Windows XPe software. Select *Start →Shutdown*.
   The following message appears: You can switch the loading unit off now. Click Ok to restart!
2. Switch off the Loading Unit (Green main power on/off)



← Main power
On / Off

**LU, Main power switch**

## 5.2 Load placement program on LU

A Process Program can be loaded onto the Loading Unit via the "Load Program"-button. The location where to download depends on how the loading unit is used. The supported process programs are for machine types: ACM, AX-3/5, AX-201, AQ1, AQ2, D9, FCM MF, GEM and MG.

## 5.3 Trolley loading/preparation

Loading of a trolley for a program starts by selecting a process program (from Floppy, CD, USB stick or PLM) and a machine type. On the Graphical User Interface a trolley position must be selected.
Two ways of trolley loading are supported:
1. Loading of a trolley from a pile of reels (position advise). The operator takes a reel and scans the partnumber. The system indicates on which position in the trolley the feeder with this reel should be loaded.
   In this way of operation the system warns the operator when he scans the partnumber:
   - If no more reels of this partnumber are required on this trolley
   - If this partnumber is used by the current program but not needed (anymore) on this trolley (indication on which trolley the part is used is given).
   - If this partnumber is not used by the current program at all.

2. Loading a trolley position-by-position from left to right. The system dictates which partnumber should be loaded next.

## 5.4 Feeder loading on the LU

1. Place the feeder on the feeder loading unit and make sure the feeder loading unit is switched on (Yellow switch on front side of LU).
2. Select the lane via barcode scanning on the trolley (in case of tray trolley) or via the (touch) screen of the loading unit.
3. Click the "Splice"-button to start the splice action. New windows will open depending on the SA configuration. Whether the fields can be scanned or entered by keyboard is configurable. Follow the steps on the screen:
   o Operator ID
   o Splice"-dialogue
   o Scan partnumber, …
4. Once all required fields are scanned the window will close automatically and the feeder or the trolley will be loaded with the information

**⚠CAUTION**

**CAUTION.**
Do not remove the feeder from the Loading Unit until the feeder has been completely programmed and all the fields in the feeder content dialog show content. Premature removal may lead to a damaged feeder.

**NOTE:** **When performing a splice action on the feeding block of the loading unit, it is not allowed to splice a second source (because the feeder is associated to a Process Program).**

TAB 2 User

**Assembleon**

# CHAPTER 6    Barcode Scanners

The following barcode scanners are supported:
- DLL6010-R-NM or Dragon (old model)   433MHZ (EUR/APR) or 910MHZ (USA)
- Dragon (new model)     433MHZ (EUR/APR) or 910MHZ (USA)
  (This new model Dragon barcode scanner is not (mechanical) exchangeable with the old model Dragon)
- Firescan D131

The operating voltage of the scanners are different (the Dragon scanners on 12V and the Firescan scanners on 5V)

| ⚠ WARNING | **CAUTION.** Laser Radiation. Do not stare into beam. | ⚠ |
|---|---|---|

## 6.1    DLL6010-R-NM or Dragon M101 model & Dragon M131 Model

The DLL6010-R-NM or the Dragon are wireless barcode scanners equipped with a LCD user interface to show SA messages and other information. These barcode scanners are used by SA on AX-201/AX-301/AX-501.

The barcode scanner communicates with the base station via radio waves. The base station that is connected via RS323 cable to the Setup Assistant system controller. Depending on local governmental regulations, one of above mentioned scanners should be used.



**Dragon M101 model**                **Dragon M131 model**
**Datalogic barcode scanners with user interface**

| Barcode scanner interface commands and icons | |
|---|---|
| **Push button** | **Function** |
| ▲ | Next / Skip this item. |
| Enter | Select/Yes: (the current item (e.g. the error that is currently on the display) or acknowledge a question (e.g. "Overwrite ?")) |
| ▼ | Previous |
| **Symbol in display** | **Explanation** |
| Antenna | displays the strength of the antenna signal |
| Battery | Shows the battery status |
| Time | Displays the time (If programmed- this time is not used by SA) |

**Push buttons on M101 (left) and M131 (right)**

If the battery displays full and runs empty in eg.1 hour the battery should be reconditioned. This can be done by placing the barcode scanner in the base station and pressing the reconditioning button on the base station. If reconditioning does not help replace the batteries, see Tab 4, service

NOTE: **The configuration is lost when the batteries are removed from the scanner or when the battery is completely empty. Insert new batteries and load them. Reconfigure the scanner according to the procedure in Tab 5 Configuration&software.**

**Base stations M101 (left) & M131 (right)**

## 6.2   Firescan barcode scanner

The Loading Unit, PA2090/21 uses the Datalogic FirescanTM barcode scanner. This is a wired barcode scanner.
The barcode scanner is configured for the Assembléon Setup Assistant purpose. If the scanner is not working properly, reconfigure the scanner according to procedure in Tab 5 *Configuration&software*
This barcode scanner communication settings (RS323) is default correctly configured.

**Firescan wired barcode scanner**

TAB 2 User

*Assembleon*

# CHAPTER 7    Feeders

To use an intelligent feeder for SA it must be set to Intelligent or Remote. On the ITF the HEX switch for setting the index pitch must be set to Intelligent. For a Twin tape feeder the upper switch must be set to "Remote" for Setup Assistant
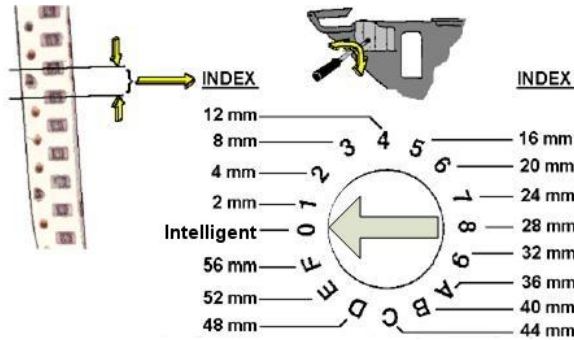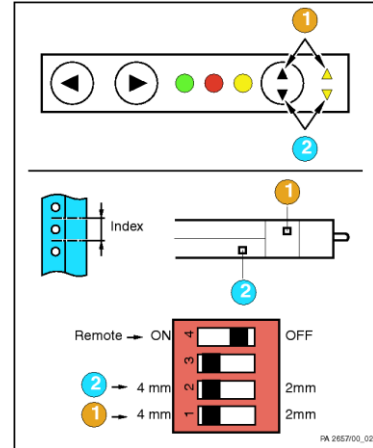
**HEX switch ITF**                                                    **Setup Assistant switch TTF**

## 7.1   Supported feeders

Setup Assistant supports the following feeders:

- Intelligent feeders and Twin Tape Feeders. They  have memory on board to store the following data:

    –

    – Feeder cycle counter                    – Next part number
    – Feeder serial number                    – Next vendor code
    – Feeder pitch size                       – Next lot code
    – Operator ID                             – Next quantity
    – Current part number                     – Date / Time stamp
    – Current vendor code                     – Pre-alert count (the threshold below which a
    – Current lot code                          feeder low warning is raised)
    – Current quantity
    – Expiration date

    It can be difficult to distinguish between lanes on twin feeders. To make the scanning of the lanes more simple, the lanes can be marked with a lane barcode sticker.

- Non-intelligent feeders (dumb feeders). They can be configured to be checked or to be ignored. The data(stored in an intelligent feeder) will be stored in the memory of the trolley.

**Note:**    **An intelligent feeder that does not communicate is not considered a non-intelligent feeder but is broken and cannot be used on the system in combination with Setup Assistant.**
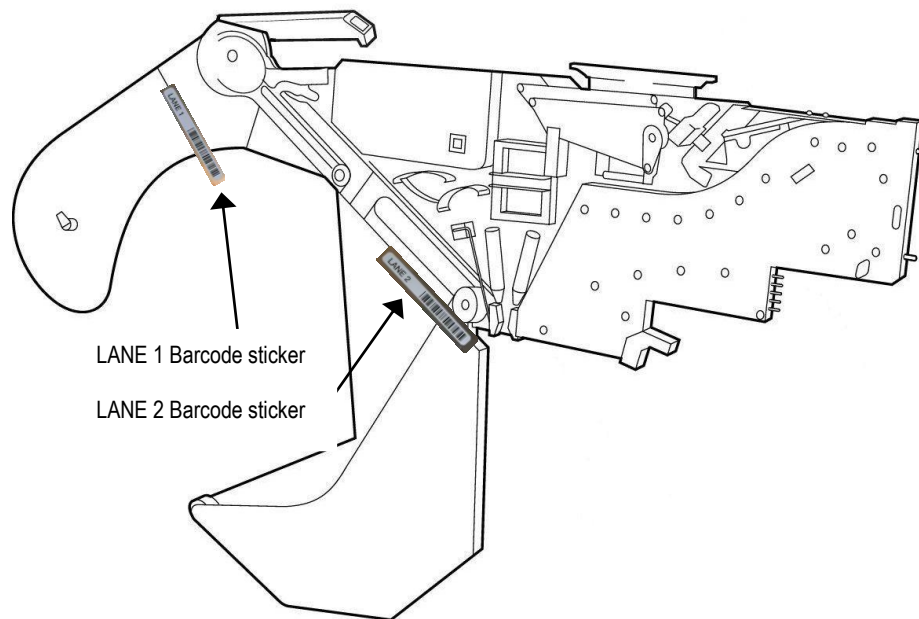
**Lane stickers on a Twin Tape eeder**

## 7.2 Feeder top guide support

On A series trolleys ITF feeders with moveable top guide can be used (to allow extra feeders on the trolley).
The scanner display has an operator guidance by indicating on the scanner display whether the top guide should be LEFT or RIGHT for that specific feeder.

**For example:**

```
Part:          yyyy
<16 digits>
Required at pos.
xxxxxx    zzzzzzzz
```

| YYYY | The first 4 digits of the part-number if the part-number contains more than 16 digits. |
|---|---|
| <16 digits> | The remaining 16 digits of the part-number. Field is right aligned. |
| XXXXXX | feeder position |
| ZZZZZZZZZZ | T.G.LEFT (Top Guide LEFT) or T.G.RIGHT (Top Guide RIGHT) (empty for non A-series trolleys) |

**Scanner display & explanation**

TAB 2 User

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# CHAPTER 8    SA MaterialDB Interface for traceability

The main purpose of the Assembléon MaterialDb Adapter is to keep the Assembléon Equipment (AX-201/AX-301/AX-501 and Loading Units) synchronized with an external Material Management system (MaterialDb). Information about Material (component reels) is exchanged based on unique MaterialId's (reel-id's).
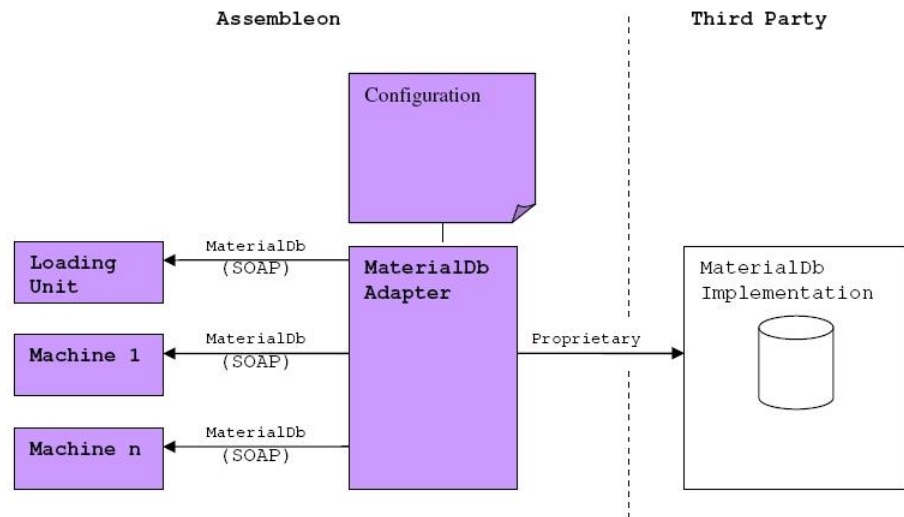
The MaterialDb Adapter connects to the Machines/Loading Units as specified in its configuration. Typically there will be 1 MaterialDb Adapter per flow-line. The Machines and Loading Units must be running Setup Assistant and Setup Assistant must be configured to use unique reel-id's.

Setup Assistant will request the MaterialDb for Material related data (e.g. the status of the Material) or requests the MaterialDb to update Material related data (e.g. the location and/or current quantity for a MaterialId).

An alternative approach for keeping the Assembléon Equipment (AX-201/AX-301/AX-501 and Loading Units) synchronized with an external Material Management system (MaterialDb), is to integrate the Material 1 Management system directly using the MaterialDb protocol. In this case, the MaterialDb connects to the Machines/Loading Units as specified in its configuration.
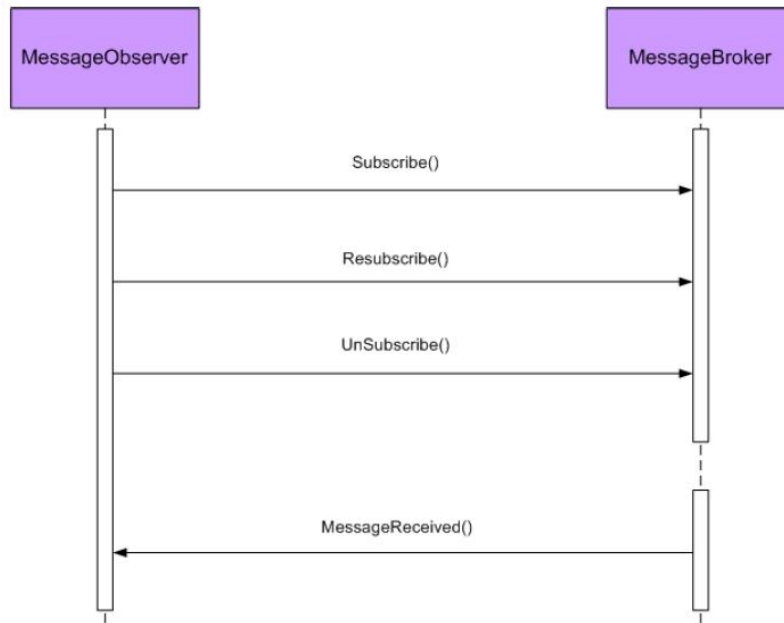
---

TAB 2 User
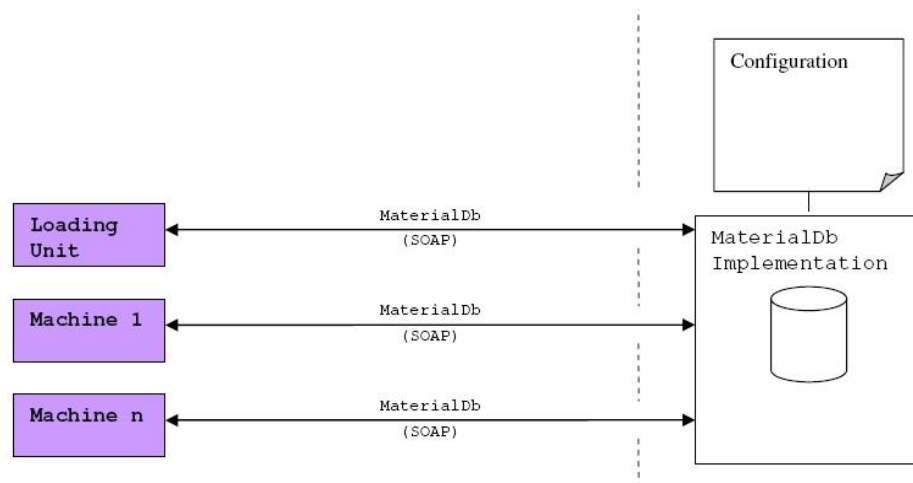
## 8.1 Interface

The Assembléon MaterialDb interface is defined by a generic Message interface. This interface is a SOAP interface. The interface is defined by WSDL and XSD and must be implemented by the External System. Updating and querying data from MaterialDb is done by sending specific messages over the message interface.

**MessageApi**

The message interface consists of two interfaces, MessageBroker and MessageObserver.

```
MessageObserver                                    MessageBroker

        |                                                |
        |------------------ Subscribe() ---------------->|
        |                                                |
        |----------------- Resubscribe() --------------->|
        |                                                |
        |----------------- UnSubscribe() --------------->|
        |                                                |
        |<---------------- MessageReceived() ------------|
        |                                                |
```

**MessageBroker**

External systems have to subscribe to the MessageBroker to receive messages on the MessageObserver interface. In the subscription the external system has to provide a MessageType to inform the MessageBroker about the type of messages they want to receive. MaterialDb only wants to receive messages about Material. The MessageBroker is responsible for routing the proper messages to the right subscribers.

# Assembleon

# Option Manual Setup Assistant Tab 3 Operating

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TAB 3 Operating manual

# CHAPTER 1   General

This operating manual serves two goals.

1. Provide a thorough overview of all safety issues of this machine.
2. Provide a quick overview of the actions needed to operate this machine.

The Setup assistant software can run on a placement machine and on a Loading Unit. The functionality and user interface is the same. The Loading unit is used for offline preparation of a new setup.

## 1.1   Setup Assistant user interface

- **Title panel ①:** Shows general information of the system (such as process program, trolley type).
- **Command panel②:** Contains main buttons for loading and clearing programs, edit settings. (un)loading of feeders, splicing etc.
- **Navigation tabs③:** To switch between the different functional environments of the graphical user interface: Required setup, Actual setup, Alarms, Setup status, Replenish and Legend.
- **Sub navigation④:** To switch between the available hardware devices (Trolley1-4, Feeder, All) within a functional environment.
- **Information panel⑤:** Shows the information of a functional environment (such as feeder information, errors & warnings, trolley setup,…).
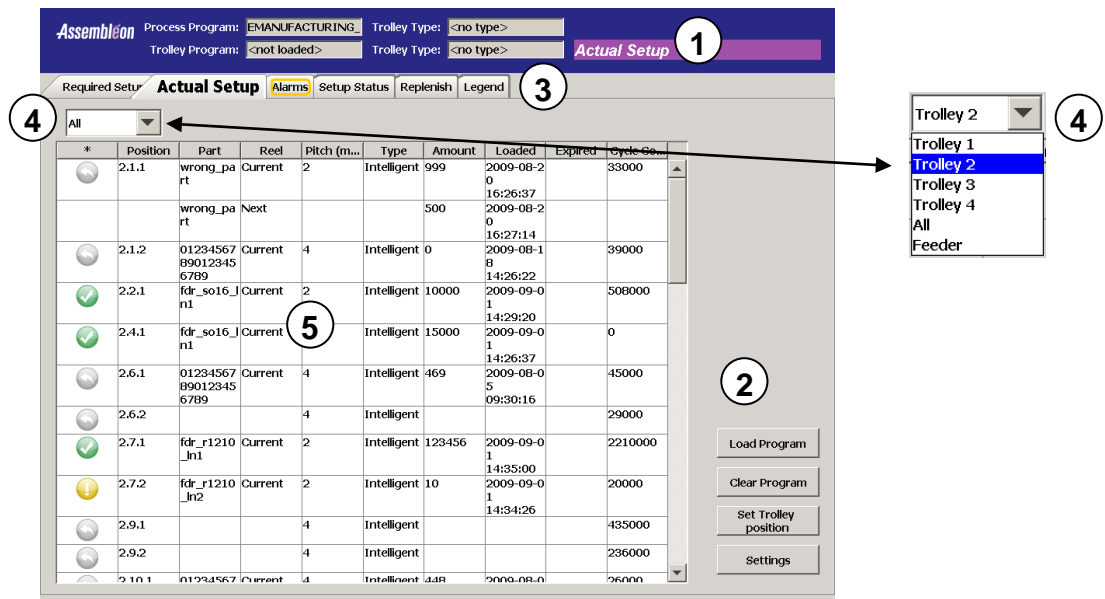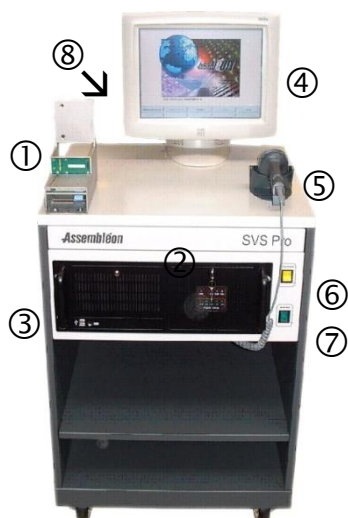


**Screen lay-out of SA**

**NOTE:   The screens on placement machines and Loading units look slightly different but have the same functionality**

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| Explanation of the columns in different views | | |
|---|---|---|
| **Column** | | **Explanation** |
| **\*** |  | Green dot: The related feeder/tray position is required for the selected process program. The setup for this position is correct |
| |  | Gray dot: The related feeder/tray position is not used for the selected process program. |
| |  | Crossed red dot: Setup error for the related intelligent feeder |
| |  | Yellow dot: Setup warning for the related feeder/tray (e.g. feeder low) |
| |  | Red dot: Hardware error for the related intelligent feeder |
| |  | Black dot: Feeder maintenance for the related intelligent feeder is required (notifications will only be shown in case the Feeder Maintenance Tool is installed. This option is not included in Setup Assistant) |
| **Position** | 3.6.1 | Feeder/Tray position. The notation is X.Y.Z<br>3.6.1: trolley/bank 3, feeder/tray position 6 on lane 1. |
| **Part** | | Part number required for this position |
| **Reel** | Current / Next | In case the tape is spliced here becomes visible what the current and the next (spliced) tape is. |
| **Feeder** | ITF2_00 | The feeder/tray type used for the tape. |
| **Support /Type** | Intelligent / dumb | Explains the loaded feeder. Possible feeders can be Intelligent or Dumb |
| **Pitch (mm)** | 4 | Shows the used pitch in mm (unless Automatic pitch programming is used on a machine, then this pitch will be ignored) |
| **Alternate** | | This shows if a position/part number has an alternate feeder or tray |
| **Amount** | 33388 | Amount of components left on the feeder/tray |
| **Loaded** | yyyy-mm-dd hh:mm:ss | Date and time stamp when the feeder is loaded with the partnumber |
| Expired | yyyy-mm-dd hh:mm:ss | Date and time stamp when material expires. If this setting is used is configurable. |
| **Description** | | Alarm screen:<br>Is the error or warning that is related to the position |

TAB 3 Operating manual
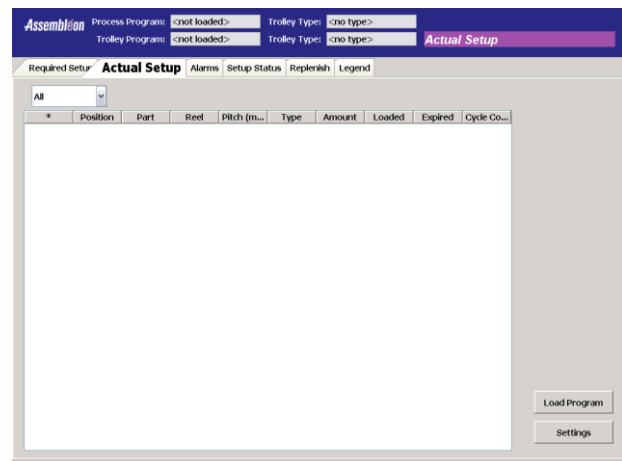
## 1.2 Loading unit



**Loading Unit**

1    Feeder loading station
2    Keyboard & mouse
3    SA controller
4    Touch screen
5    Barcode scanner
6    ON/OFF feeder loading
7    Main power ON/OFF
8    Trolley connection cable (at the rear of the LU)

The SA loading unit is used for:
- Trolley Preparation:
    o    Load feeder/tray on trolley
    o    Unload feeder/tray from trolley
    o    Clear all feeder information of all feeders on trolley
    o    Print out information of the trolley

- Feeder Preparation:
    o    Load feeder
    o    Unload feeder
    o    Set index for feeder
    o    Do index for feeder
    o    Splice reel

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### 1.2.1 Switch on procedure

1. Make sure that there is no feeder on the loading unit.
2. Switch on the Loading unit (⑦ green switch on the front side).
3. The computer starts up and the main SA screen becomes active.



**SA Main screen**

### 1.2.2 Switch off procedure

To switch off the Loading Unit, the Windows software must be shutdown.

1. Select <Start> → <Shutdown>
   The message "*You can switch the loading Unit off now. Click Ok to restart!*" appears.
2. Switch off the Loading Unit by turning the green switch



← Main power On / Off

**Loading Unit, Main power switch**

## 1.3 Printing

The following reports can be printed with Setup Assistant in lite mode (and the appropriate printers installed):

- Actual setup report,
- Required setup report,
- Setup verification report. (report errors)

Depending on the configuration of the Setup Assistant system, it is possible to print a barcode sticker with the remaining quantity on the real after unloading a feeder.

To print one of these reports, scan the corresponding barcode.

Report Actual          *Y251*

Report Required        *Y252*

Report Errors          *Y253*

## 1.4 Other SA functions

- [Set Pitch] Select the correct lane and press the *Set pitch* button. Select the appropriate index step. This information is stored in the feeder memory. In case Automatic pitch programming is used, during production this setting will be overruled by the pitch setting in the second source file.
- [Unload] Select the correct lane and press the *Unload* button. All the information from the feeder memory will be removed. The tape can be removed from the feeder (Follow the instructions on the screen). In case a label printer is attached (optional) stick the printed label on the reel or bulk container.
- Print reel: Print information from feeder memory to a barcode printer (optional).

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# CHAPTER 2   Offline preparation

### 2.1   Feeder Preparation

1. Place a feeder on the LU on the feeder loading station
2. Switch on the Feeder power (yellow switch)
3. The Actual setup screen with the detected feeder appears. The feeder contents is displayed and the following actions are possible:
   - Load tape
   - Splice tape
   - Show info
   - Unload tape
   - Feeder maintenance (only available when the optional Feeder maintenance program is installed)

When a twin tape feeder is placed the appropriate lane must be selected manually or with a lane barcode.
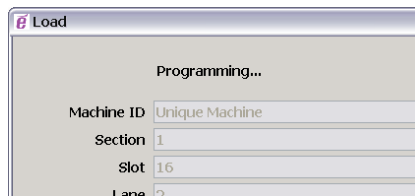


← Feeder power On / Off

**Loading Unit, Feeder power switch**
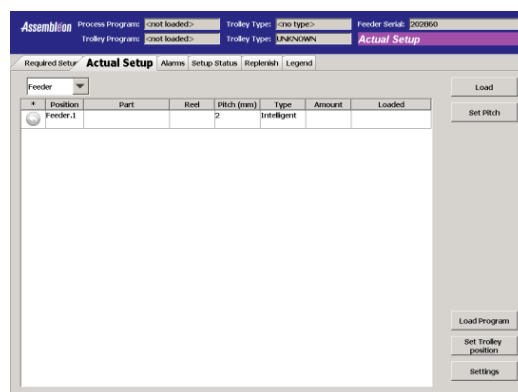


**Feeder on feeder block screen**

---

2.1.1 **Load tape information on feeder**

1. Place a feeder on the LU on the feeder loading station and make sure the Feeder power is on. Wait until SA recognizes the feeder and displays the feeder on screen.

2. Make sure the appropriate lane is empty and there is no component data in the feeder memory (if there is: first unload the tape).

3. Place the tape on the correct lane of the feeder.

4. In case of a twin tape feeder select correct the feeder lane on screen (or scan the correct barcode)

5. Click on the Load button    **Load**

6. Enter the operator ID (optional) via keyboard, touch screen or barcode

7. The load screen appears. This screen is configurable so it can differ from the example. Scan or enter the required barcodes. Also the sequence can be configured.

8. After all information is loaded click Ok    **OK**

9. The feeder will now be programmed with the data. After the Load screen has disappeared the feeder can be removed or a second lane can be loaded (in case of twin tape feeder)

**Place feeder**

**SA recognized a twin tape feeder**

**Feeder loading in progress**

**Load screen: Scan or enter required barcodes**

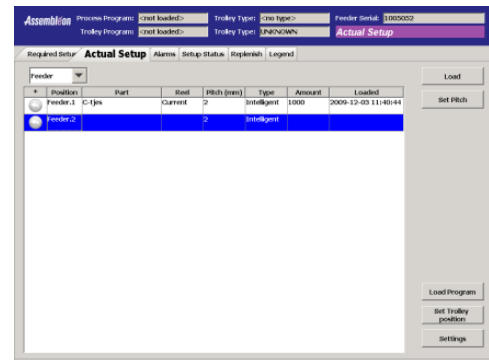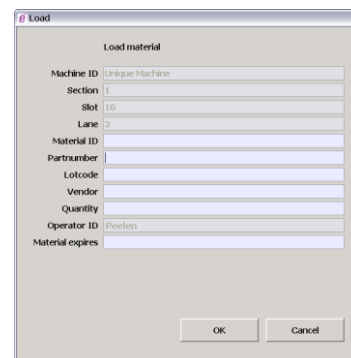10. If a placement program is loaded and the appropriate trolley is connected, SA can give a position advice for the loaded feeder. Place the feeder on the advised position and the dialog will automatically close.
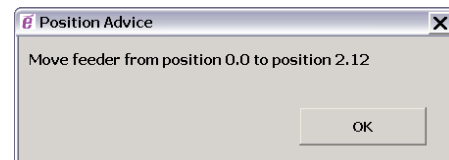
**Position advice for loaded feeder**

NOTE: **Do not remove the feeder from the Loading Unit until the feeder has been programmed. Premature removal might cause damage to the feeder.**

TAB 3 Operating manual
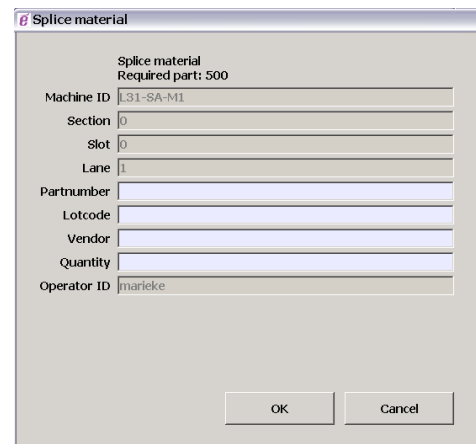
*Assembleon*

## 2.2 Splice reel

A tape can be spliced on the placement machine and on the Loading Unit. The procedure is the same.

### 2.2.1 Operator initiated splice

1. Check on the SA GUI which components are needed for the feeder that will be spliced.
2. Make the splice with the first 3 empty pockets in the new tape (the amount of empty pockets is configurable). Or, if BA splice is used, apply special splice tape on the topfoil.
3. On the SA setup screen select the spliced lane.
4. Click on the splice button  [ Splice ]
5. Enter or scan the required information (depending on the configuration this can be Operator ID, Material ID, Partnumber, Lotcode, Vendor, Quantity, Material expires)
6. If the correct reel is used and the information is entered the dialog will close and the splice is made.
7. If the wrong splice is made SA will indicate this. In case the wrong splice is made on a placement machine production will be stopped immediately.
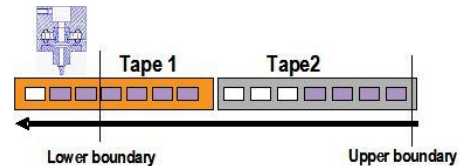


**Splice tape with empty pockets**



**Splice screen**
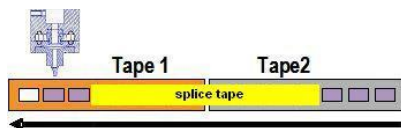


**BA Splice detection**

### 2.2.2 Correct wrong splice

To correct a wrong splice there are a few possibilities. The most suitable depends on if the wrong splice was made on a placement machine or the Loading Unit.

- Loading Unit: Cut open the wrong splice and splice the correct reel
- Placement machine:
  - o Remove the feeder and replace it with a correctly loaded feeder. Correct the splice on a Loading Unit
  - o Cut open the wrong splice and splice the correct reel

1. Cut the splice and remove the faulty components.
2. Make a new splice with the correct tape (first 3 empty pockets in the new tape or

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use splice tape in case of BA splice detection).

3.  On the SA setup screen select the spliced lane.

4.  Click on the splice button [ Splice ]

5.  Enter or scan the required information (depending on the configuration this can be Operator ID, Material ID, Partnumber, Lotcode, Vendor, Quantity, Material expires)

6.  If the correct reel is used and the information is entered the dialog will close and the splice is made.



**Splice tape with empty pockets**



**Splice screen**

TAB 3 Operating manual
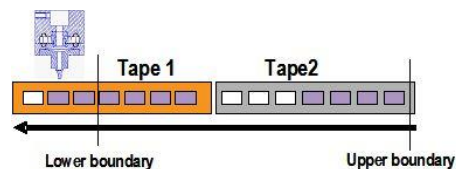
*Assembleon*

### 2.3 Trolley preparation

A trolley setup for a new production can be made offline with the Loading Unit.

1. Make sure the Loading Unit is switched on and SA is running. If present remove the feeder from the Loading Unit.
2. Select the placement program for which the setup will be prepared. [Load Program] Click on Load Program, first select the placement machine type (e.g. AX-201) and select the placement program. Click on [...] to browse for the program.
3. Connect a trolley to the loading unit with the trolley cable. Wait until the trolley is recognized and the programmed position and the loaded feeders are shown
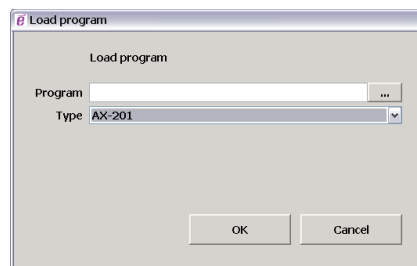


**Load program screen**
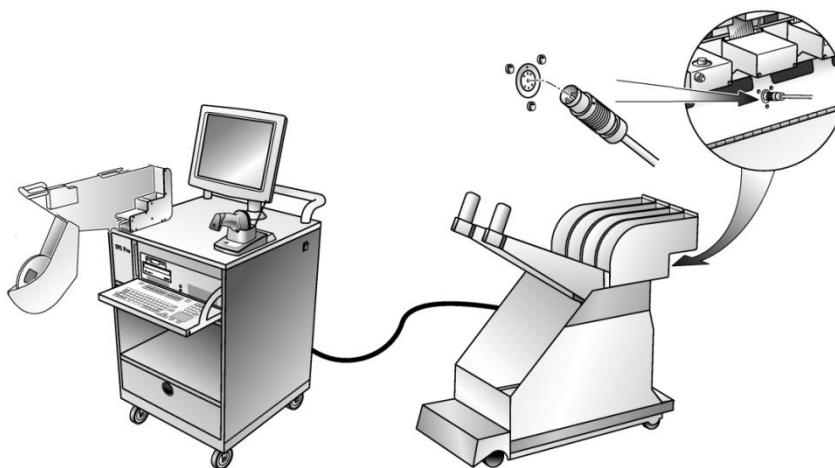


**Connect the trolley to the LU**

4. Check if the trolley position is correct. Change if necessary:
   - Click on "Set trolley position" [Set Trolley position]
   - Select the new trolley position (positions can be chosen according to the loaded placement program)
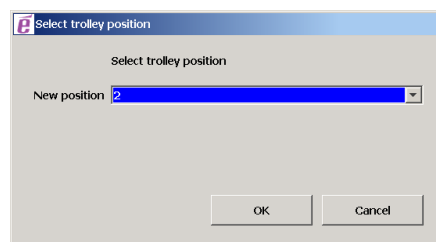


**Set trolley position**

5. Follow the instructions on screen.
   - Remove feeders with wrong parts.
   - Load empty feeders with new parts (after loading SA will give a position advise for the feeder)
   - Feeders with parts that are not used can be unloaded en loaded with new parts.

6. Load and install feeders until the list is empty
7. When the setup is complete there are no more Errors and SA will give the message 'Setup Ok'

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# CHAPTER 3   SA handling during production

SA can be controlled via the GUI and the barcode scanner.
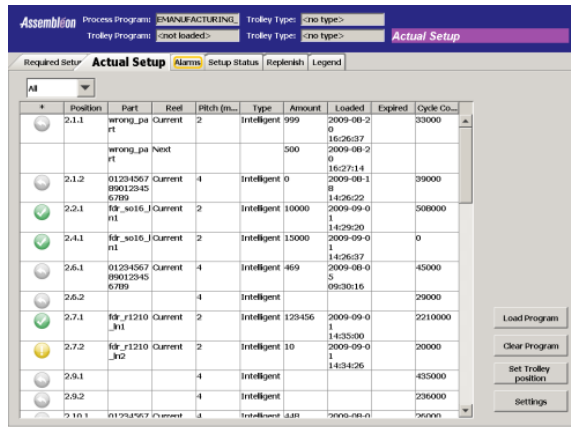


**Setup Assistant user interface via GUI and Barcode scanner**

| Barcode scanner interface | |
|---|---|
| **Buttons** | **Explanation** |
| ▼ | Next item |
| ▲ | Previous item / Stop action |
| Enter | Select the current item (e.g. the error that is currently on the display) or acknowledge a question (e.g. "Overwrite?"). |
| **Barcode screen information** | |
| <message> | Messages like: warnings, errors, or Setup Ok |
| xxxxxx | Indicates the feeder position<br>In case of a component on a tray position:<br>section.pallet_position.tray_number |
| yyyy | Indicates the first 4 digits of the part number if the part number contains more than 16 digits |
| <last 16 digits> | Indicates the last 16 digits of the part number |

**Push buttons on barcode scanner M101**

**Push buttons on barcode scanner M131**

```
Feeder Low
Position     xxxxxx
Part           yyyy
<last 16 digits>
```

```
Load tray
Position     xxxxxx
Scan part: yyyy
<last 16 digits>
```

**Example of barcode scanner message**

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### 3.1 Splicing procedure

Splicing can be started in 2 ways:
- Warning on machine of Low Parts on a Feeder.
- Scan feeder position.

#### 3.1.1 Splice on warning on machine: Feeder low

When the following message appears on the scanner display the tape on that feeder must be spliced (The yellow LED on the feeder blinks).
1. Press "Enter" on the scanner.

```
Feeder Low
Position    xxxxxx
Part        yyyy
<last 16 digits>
```

**Feeder low dialogue**

2. Perform a splicing procedure leaving y number of pockets empty. By default y = 3.
3. Press "Enter" on the scanner.

```
Position    xxxxxx
No splice data
Splice (y)
Or Next?
```

**Splice dialogue**

4. Scan: part number - Vendor code - Lot code - Reel ID - Quantity (depending on configuration)

```
Splicing feeder
Position    xxxxxx
OK
```

**Splice dialogue**

#### 3.1.2 Splice by scanning feeder position
1. Perform a splicing procedure leaving y number of pockets empty. By default y = 3
2. Select the position where the splice was made. Scan a feeder position using the barcode scanner (also scan the lane in case of a twin tape feeder).
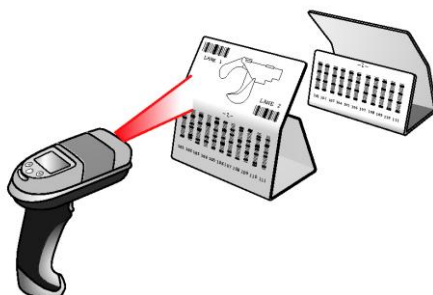


**Scan position
(also Scan lane 1 or 2 in case of Twin Tape Feeder)**

```
Position    xxxxxx
NO Splice Data
Splice (y)
Or Next?
```

**Splice start dialogue**

3. Press "Enter" on the scanner
4. Scan: part number - Vendor code - Lot code - Reel ID - Quantity (depending on configuration).

```
Splice lane
xxxxxx
Scan part
<last 16 digits>
```

**Splice dialogue**

```
Splicing feeder
Position    xxxxxx
Programmed Ok
```

**Splice  Ok dialogue**

3.1.3 **Error on Machine (AX only): No splice found**
When the following message appears on the scanner display:

```
No Splice found
Position    xxxxxx
Splice passed?
```

1. Press "Enter" on the scanner
2. Unload the reel
3. Splicing or unloading.
4. Load the reel Loading.

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### 3.2 Forced feeder rescan

**Procedure**

The following screen will appear:

1. Press 'Enter' to start the forced rescan. All feeders that require a rescan are displayed one by one. One can step through the list by pressing the ▼ "next" button. Pressing the ▲ "previous" button aborts the operation

```
Rescan required

Press ENTER to
rescan
```
**Forced rescan dialogue 1**

2. Scan all the required barcodes.
3. Repeat this for all feeders/lanes requires in the PP until the message is displayed "Setup OK"

```
Rescan
Position     xxxxxx
Scan part: yyyy
<last 16 digits>
```
**Forced rescan dialogue 2**

**NOTE:** **If the partnumber scanned does not match the expected partnumber than the feeder/lane memory is cleared. The status will be set to "Not programmed"**

**NOTE:** **If during 30 seconds no operator action occurs, the partnumber in the feeder/lane memory is cleared. The status will be set to "Not programmed"**

### 3.3 Feeder empty

When the "Feeder empty" message appears the operator has 2 options:

```
Feeder empty
Position     xxxxxx
Scan part: yyyy
<last 16 digits>
```
**Feeder empty dialogue**

1. Press 'Enter' to start a splice action.
   – The splice dialogue will appear, press 'Enter' on the scanner
   – Perform a splicing procedure

```
Feeder empty
Position     xxxxxx
Splice or next?
```
**Splice dialogue**

2. If there are still components in the tape left than press ▼.
   – The incrementing parts dialogue will appear. The quantity for increment is a configurable amount.

```
Incrementing
parts count by:
#
```
**Incrementing parts dialogue**

### 3.4 Rescan

To activate the rescan of all part numbers the barcode "RESCAN" must be scanned. This is located on the machine near the barcode scanner. (Depending on the configuration, the operator ID must be scanned first)
The 'Setup check' message will appear on the scanner display

```
Setup check
Position    xxxxxx
Scan part: yyyy
<last 16 digits>
```

**Setup check dialogue**

1. Press "Enter" on the barcode scanner.
2. Scan part number.
3. If Ok, the next position is displayed
   − When the button ▾ is pressed the next part number is displayed.
   − The button ▴ will stop the rescan action
4. Rescan all reels (left to right) is done while machine is running

### 3.5 Setup non intelligent feeder

1. Press "Enter" on the barcode scanner
2. Scan part number/Vendor code/Lot code and Quantity (depending on configuration).

```
Feeder missing:
Position     xxxxxx
Part: yyyy
<last 16 digits>
```

**Feeder missing dialogue**

```
Loading non-ITF
Position     xxxxxx
Scan part: yyyy
<last 16 digits>
```

**Non ITF feeder programming**

```
Loading non-ITF
Position     xxxxxx
Programmed OK
```

**Non ITF feeder programmed**

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## 3.6    Change over to different Placement Program

When a different placement program is chosen on
the machine, the 'Trolley setup' message will
appear on the scanner display.

1.    Press "Enter" on the barcode scanner.
2.    Now the placement program in the trolley
      memory is over written with the new
      placement program
3.    Depending on the required setup a message
      will appear: 'Setup OK' or 'Feeder missing' or
      'Wrong feeder', etc

```
Trolley # setup
for other prog:
<prg. name>
Overwrite?
```

**Trolley setup**

```
Overwriting
Trolley # program
<pp name>
```

**Overwrite trolley**

## 3.7    Tray feeders

Most of the functionality is similar to normal
feeders but the Position data is different with tray
feeders.
The tray position xxxxxx has the following format:
section.pallet_position.tray_number

```
Load tray
Position      xxxxxx
Scan part: yyyy
<last 16 digits>
```

**Load tray dialogue**

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## CHAPTER 4  Online setup with SA (without loading unit)

Setup Assistant can be configured to operate without a loading unit. This is called the 'lite' mode. When the system is in the lite mode, you can load or unload feeder data at the machine.

### 4.1  Loading

1. Make sure the correct placement program (for which the setup is made) is running.
2. To load an empty lane or tray, scan the position number of the empty lane or tray.
3. The Lane Loading screen appears. Select "Enter" on the barcode scanner to load.
4. SA will now ask for the partnumber. Scan the part number, vendor code, lot code, quantity and feeder id. (Depending on the configuration, first scan the operator ID).
5. Optional: the pitch must be set:
   - Press the ▼ button to decrement the pitch with 2 mm.
   - Press the ▲ button to increment the pitch with 2 mm
   - Press the Enter button to confirm the set pitch

```
Position      xxxxxx
Lane not loaded


Load?
```

**Lane loading dialogue**

```
Position      xxxxxx
Part           yyyy
<last 16 char.>
Pitch          zzzz
```

**Pitch setting**

### 4.2  Splicing or unloading

1. To splice or unload a lane or tray, scan the position number of the lane or tray. The Splice screen appears.
   - Press "Enter" to start the splice procedure. Refer to the splice procedure in chapter 3
   - Press the ▼ button to go to the feeder information screen.

```
Position      xxxxxx
No splice data
Splice or
Next?
```

**Splice confirmation**

2. If the scanned position was already spliced, the Overwrite screen appears.
   - Press "Enter" to start the splice overwrite procedure.
   - Press the ▼ button to go to the feeder information screen.

```
Position      xxxxxx
Already spliced
Overwrite or
Next?
```

**Splice overwrite**

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3. Press "Enter" to get lane/tray information.
   – zzzzzz is the total quantity left at this position. When the quantity number is followed by an asterisk ("*" at position "S"), the feeder/lane has been spliced
   – pppp is the pitch set for this position

```
Position      xxxxxx


Show information
or Next?
```

**Lane/tray information confirmation**

```
Position      xxxxxx
Part            yyyy
<last 16 chars.>
Q=zzzzzzS  P=pppp
```

**Lane/tray information**

4. Press the ▼ button to go to the unloading confirmation screen. The system displays now the part number and quantity left on this position.

5. Press "Enter" to start unloading

```
Position      xxxxxx
Part            yyyy
<last 16 chars.>
Q=zzzzzzS  Unload?
```

Lane/tray unload confirmation

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# Option Manual Setup Assistant Tab 4 Service

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# CHAPTER 1 Setup assistant repair policy

- The **Setup Assistant system controller** is defined as an Assembléon repairable part. There are 2 types of Setup Assistant system controllers. Depending on what type is used a complete module can be exchanged at the customer site.

- The **Trolley Control Board unit** (TBC) is available as a spare part. None of these parts are defined as an Assembléon repairable part.

- **Other parts**. Touch screen, barcode scanner, base station, cables and power supplies are defined as separate spare parts. None of these parts are defined as an Assembléon repairable part. Rechargeable Batteries used by the scanner should be obtained locally.

# CHAPTER 2 Maintenance

Setup Assistant does not require any additional maintenance.

TAB 4 Service

**Assembleon**

# CHAPTER 3   Trouble shooting

### 3.1   **General SA error messages & remedies**

| Error message / Symptom | Possible causes | Remedy |
|---|---|---|
| Barcode on reel not read | Barcode unreadable | Use different reel to keep working now and replace unreadable barcode sticker (using the loading unit) |
| | | Place feeder on loading unit and enter barcode using keyboard. |
| | Scanner window dirty | Clean scanner window with moist cloth |
| | Batteries of scanner empty | Replace or recharge batteries |
| | Two scanners are switched (from machine to loading unit and vice versa) | Use original scanner (that is bound to the base station) |
| | | Re-bind scanner with base station |
| | Cables between base station and SA controller disconnected | Connect cables |
| | Barcode does not comply with configuration file | Check SA configuration file, or  check barcode. |
| 'Miss SMD after pick' error | Empty tape (over time the 'remaining quantity' as stored in the feeder memory may differ a lot from reality. This may lead to a situation where the feeder counter has not reached zero, but the tape is physically empty.) | Feeder must be taken off the machine and be loaded on an SA loading unit or Splice the feeder. |
| | Wrong index on feeder | Set correct index using the loading unit |
| 'Feeder empty, position and partnumber' error (Scanner display: FEEDER EMPTY POSITION xxxxxx PART      yyyy <LAST 16 DIGITS>) | SA is not fool-proof for feeders without splice detection (if the feeder has data for the next reel, the data for the next reel is copied to the current, and the next info is cleared (e.g. a splice detection is simulated)). For feeders without splice detection the actual remaining quantity may differ from reality. This may lead to a situation where there are still quite a lot of components on the reel, but the feeder counter becomes zero | When the current reel is (almost) empty: Press the [Enter] pushbutton on the scanner. SA starts the splice procedure. |
| | | When the reel still contains enough components: Press the [♦] pushbutton on the scanner. SA increments the partnumber count for this feeder with a configurable amount of components (until it stops the machine again). **Note:** For more information about the configuration of SA refer to the Software & configuration tab. |
| | Wrong index on feeder | Set correct index using the loading unit |
| Feeder does not respond | Hex switch on feeder not set on '0'(ITF) or "remote" (TTF) | Set hex switch on feeder on '0"(ITF) or "remote" (TTF) |
| | Not all 5 contact pins on feeder present | Repair feeder: place contact pins |
| | Feeders do not have power (no LEDs are lit): feeder trolley power supply defect | Replace feeder trolley power supply |
| Feeder trolley does not respond | Feeder trolley not properly connected | Connect feeder trolley |
| | Feeder trolley - base interface connection defect | Connect to LU if not ok, replace interface |
| | Feeder trolley power supply defect (feeders do not have power either: no LEDs are lit) | Connect to LU if ok, replace feeder trolley power supply |
| | Intelligent mode of feeder trolley defect | Replace feeder trolley controller board |
| | No contact between trolley and machine | Clean trolley interface board connections |

| Error message / Symptom | Possible causes | Remedy |
|---|---|---|
| `'CFG parse failed'` on scanner display | The configuration file has been changed | Correct the configuration file for the items mentioned in the machine log file.<br>**Note:** For more information about the configuration of SA refer to the Software & configuration tab. |
|  |  | Delete the configuration file and a new configuration file with default settings will be generated upon startup of the machine controller |
| No "beep" from scanner when scanning a barcode | Setup scanner not OK | Remove batteries / Insert batteries. Scan all barcodes from setup procedure. |
| After a splice operation on the machine, the stored time (in the ITF) is not conform the time on the machine or the time on the SA controller (which match). (time difference: 2h, date is correct) | Mismatch between time setting SA and system controller. | The date/time properties of the machine controller and the SA Controller need to be identical.<br>Check regional settings in control panel.<br>After the modification reboot both Machine and SA controller. |
| When SA reports a communication error the advice is to fix the problem and restart the machine. Communication error not resolved after restart. | Machine is not properly restarted (can be the case on a Gem machine) | Disable and enable<br>Power down and power up<br>Check config files<br>Check communication settings<br>Check cables |
| SA is not active after start up of the machine. "Communication error, Fix and restart". | AX: Change the SA configuration file via the AX-GUI (valid changes!); Power down and power up the machine. | Boot sequence of SA was NOT correct. After changing the boot sequence to the specified boot sequence for the AX, the problem described in this event did no longer occur. |
| Faulty feeder, missing contact pins or broken pcb. | Full trolley, contents screen shows missing parts for all feeders. When the feeders are checked individually on the loading unit they show the correct contents.<br>**Example**: Select a PP SA Loading Unit. Connect full trolley with feeder setup to the Loading Unit. Switch to 'Fill Trolley'<br>In trolley contents screen only feeder at position 307.1 is shown with partnumber ...90265. At position 307.1 a wrong partnumber is shown with partnumber ...90365 (!different from display in Trolley Contents!)<br>For the other feeders a 'missing part' message is shown<br>Expected behavior: Data in 'Trolley contents' screen corresponds with process program info for trolley "x". 'Fill trolley' screen is empty | Keep trolley connected to LU.<br>Remove all the feeders one by one.<br>When the problem is gone the faulty feeder is removed.<br>Check the contact pins of the feeder - replace broken pins<br>Send feeder to repair shop |
| Access Violation at startup of SA application | Date / Time in BIOS of machine controller and SA controller not identical. | Set Date/Time in BIOS of machine and SA controller to the actual Date/Time |
| "Trolley missing" messages | Wrongly set "CAN connector is plugged in at the Process/System Controller" parameter. (see Production settings in Tab 5) | Make sure set "CAN connector is plugged in at the Process/System Controller" is :<br>checked in case the CAN is connected to the APC or SC<br>unchecked in case CAN is connected to SA controller<br>reboot the system after changing this parameter. |

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| Error message / Symptom | Possible causes | Remedy |
|---|---|---|
| Setup Assistant (SVS Pro) Fatal Error | No network connection | Several wrong settings can cause this problem<br>• Check if the IP range of the SA Controller is in the same IP range of the internal network settings of the placement machine (normally range 10.0.0 or 192.168.0.) The SA controller IP address must be set in the same range with the fourth digit 32. Refer to the AX service manual for the AX IP address.<br>• Ping the AX-3/5 from the SA controller. AX-3/5 and SA controller must be in the same IP range. If not the Ping will fail.<br>• Check if the HUB is working correctly.<br>• Check the network cable in the correct network interface connector on the SA controller. |
| SVS-communication failed | No serial communication | check serial card of both SA and system controller<br>Check serial cable from SA controller to System.<br>Check can be performed using HyperTerminal on both SA as System controller |
| No messages on scanner | No serial communication | check serial card of both SA and system controller<br>Check serial cable from SA controller to System.<br>Check can be performed using HyperTerminal on both SA as System controller |

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### 3.2 **LED signaling on ITF feeders**

| LED signaling on Intelligent feeders | | | |
|---|---|---|---|
| **LED** | | **Status** | **Remarks** |
| Yellow light | off | OK | |
| | Flashing | Low feeder warning | Read instructions on scanner display |
| | On | Error: set-up mismatch | Scan part number and read instructions on scanner display |
| | | feeder empty | Place feeder on loading unit to check index and load new reel |
| Red Light Indicates hard errors | OFF | NO errors | - |
| | ON | Feeder defect | Replace feeder. |
| | 2 blinks | Nozzle Sensor Error | Too much light (external light source interference) Too high intensity of transmitting LED. Short circuit in receiver |
| | 3 blinks | Tape index aborted Error. | This error occurs if the feeder is powered down during indexing the tape. As long as the bit is set the automatic tape index is disabled. Reset by pressing the Forward or backward button. |
| | 4 blinks | Time-Out Error | No impulse from the index sensor (timeout = 500ms). This error only applies to the index motor. |
| | 5 blinks | Memory EEPROM Error | EEPROM has gone defective. The feeder needs to be replaced |
| | 7 blinks | Communication Error | CAN-Controller enters the Bus-Off state. Error occurs during message reception or transmission. This occurs only when the feeder is in Remote mode |
| Green light | flashing | Feeder power up error | Remove feeder and place feeder again |
| Twin tape feeders also have a lane indication led | | | |

### 3.3 **Diagnostic Tools**

#### 3.3.1 **'Watchdog' function**
Setup Assistant software sends a message to the machine to signal the machine that the Setup Assistant software still 'alive' every 15 seconds. This message is also sent at power up and at enabling the Setup Assistant controller. (Not on AX-3/5)
Continuous checks (on read/write events).

#### 3.3.2 **Operator-Initiated Diagnostic Tools**
All these checks are initiated by scanning the appropriate command barcode.
1. Communication between the Setup Assistant controller and the feeder trolleys (answer-and-respond protocol)
2. All software and firmware versions can be viewed.
3. Feeder trolley power level check.

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### 3.3.3    CAM card diagnostics

There are 2 possibilities to test the CAM card:

- The IXXAT interface test. This test checks the drivers and if the CAN card can be accessed. To check the interface: <START> → <Settings> → <Control Panel> → <IXXAT interfaces>. By selecting the "Test"-bottom (A) a communication and hardware test is performed and the results are shown (B)
- With Minimum communication it is possible send information over the CAM bus. With this application it is possible check the firmware and status of the CAN card. With the "CAN status" sub window several status can be checked.
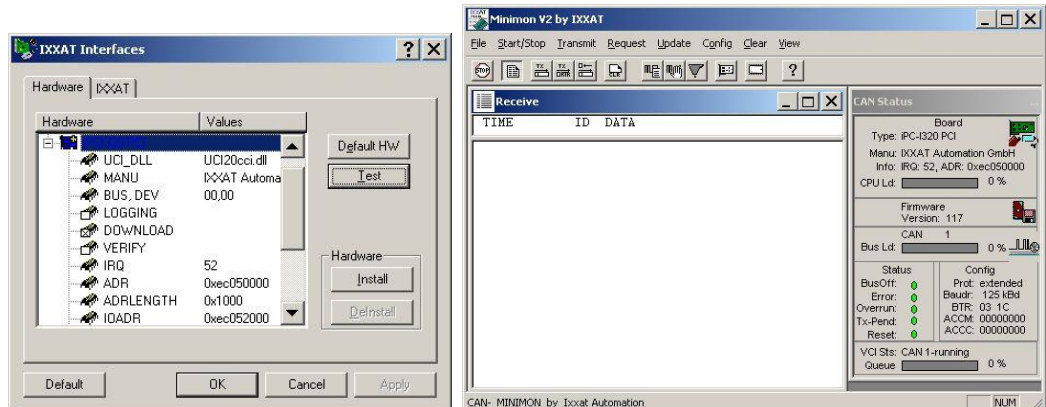


**IXXAT interface test and Minimon 32**

### 3.4 **Barcode scanner diagnosis tree**

```
                          ┌─────────────┐
                          │    Start    │
                          └──────┬──────┘
                                 │
                          ┌──────▼──────────┐
                          │ Try to scan a   │
                          │ bardcode with   │
                          │ the barcode     │
                          │ scanner         │
                          └──────┬──────────┘
                                 │
    ┌──────────────────┐      ◇─▼─◇
    │ Bad Barcode on   │◄─No─ Scanner
    │ label            │      beeps and lights
    │ Bad Barcode      │      green Led?
    │ Format           │       ◇───◇
    └────────┬─────────┘         │ Yes
             │           ┌───────▼──────────┐
             │           │ Check if         │
             │           │ information is   │
             │           │ send to SA       │
             │           │ computer         │
             │           └───────┬──────────┘
             │           ┌───────▼──────────┐
             │           │ Check barcode    │
             │           │ scanner type     │
             │           └───────┬──────────┘
             │                 ◇─▼─◇              ┌──────────────────┐
             │             Information ──Yes──►   │ Check:           │
             │             on Hyper             │ - scanner is     │
             │             Terminal?             │   connected to   │
             │               ◇─┬─◇               │   COM3           │
             │                 │ No              │ - SA software ok │
             │                 │                 └────────┬─────────┘
             │               ◇─▼─◇                        │
             │   ┌──Dragon── Check ──FireScan──┐          │
             │   │           Type              │          │
             │   │           Scanner           │          │
             │   │            ◇───◇            │          │
             │ ┌─▼──────────┐    ┌─────────────▼─┐        │
             │ │ Check:     │    │ Check:        │        │
             │ │ - COM port3│    │ - COM port 3  │        │
             │ │ - Cradle   │    │ - Cable       │        │
             │ │   settings │    └──────┬────────┘        │
             │ │ - Cable    │           │                 │
             │ └─────┬──────┘           │                 │
             │       │        ┌─────────┴──┐              │
             └───────┴────────►    End     ◄──────────────┘
                              └────────────┘
```

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### 3.5 **Base station Dragon LED signaling**

| LED signaling Dragon Base station | | |
|---|---|---|
| **Red LED** | **Green LED** | **Meaning** |
| ON | ON | Charging |
| OFF | ON | End of charge |
| OFF | OFF | No battery inserted |
| Flashing | OFF | Discharging |
| Flashing | Flashing | Shorted or open battery, dirty contacts on barcode scanner and base station |



**Base stations M101 (left) & M131 (right)**

### 3.6 **Barcode scanner RS232 settings**

For the default settings of the RS232 se the following table:

| Parameter | Value |
|---|---|
| Baud rate | 9600 |
| Parity | Disabled/No |
| Data Bits | 8 |
| Stop Bits | 1 |

# CHAPTER 4 Replacement instructions

> **NOTE:** **The replacement must be carried out by an Assembléon trained and qualified technician.**

## 4.1 Replacing the SA System Controller. (LU, AX-201 & AX 3/5)

**Special Tools and materials**
- (Advantech) Setup Assistant system controller
- Setup Assistant Operating and application software (2 CDROMs)
- For installation of the SA application software on a placement machine (AX-201 & AX 3/5): VGA monitor, PS/2 Keyboard and Mouse

**Prerequisites**
Open the new Setup Assistant system controller by loosening the screws at the rear of the controller and check visually if all cards are firmly and correct mounted in the sockets of the motherboard. Make sure the rubber bumpers are correctly holding down the cards.

**Software and configuration**
1. Connect the VGA monitor, keyboard and mouse to the new system controller. Connect the Setup Assistant controller to the mains and switch on the controller if it is not switched on automatically.

2. Check Advantech controller BIOS settings (see §0 6.1 )

3. Software and configuration on the new controller
    - Install the software as described in the TAB Setup Assistant - Software .
    - Reboot the Setup Assistant system controller and check if the Setup Assistant application starts up (automatic login).
    - Restore the configuration files
    - Power down the new Setup Assistant controller
    - Power down the loading unit or the placement machine.

**Controller Replacement**

4. Controller Replacement (AX-201)
    - Open the door under the run-out section to access the Setup Assistant system controller.
    - Slide out the Setup Assistant system controller (1).
    - Disconnect all cables connected to the Setup Assistant system controller.
    - Connect all cables (and gender changes if applicable) firmly to the new Setup Assistant system controller. Make sure the cables are connected firmly and use the cables-locks if applicable (see figure).
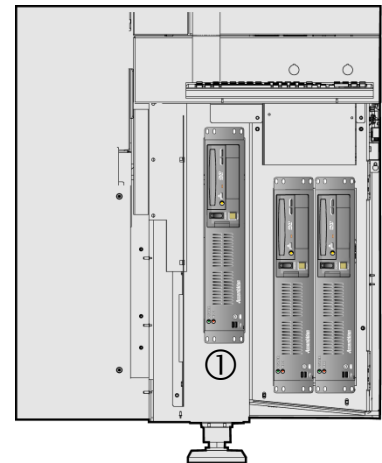


**SA controller AX-201**

    - Slide in the Setup Assistant system controller and mount the 4 Allen screws with washers.
    - Slide in the controller and mount the brackets on both side in the cabinet. Use the screws and washers.

5. Switch on the machine and check if the AX software recognizes the Setup Assistant option.

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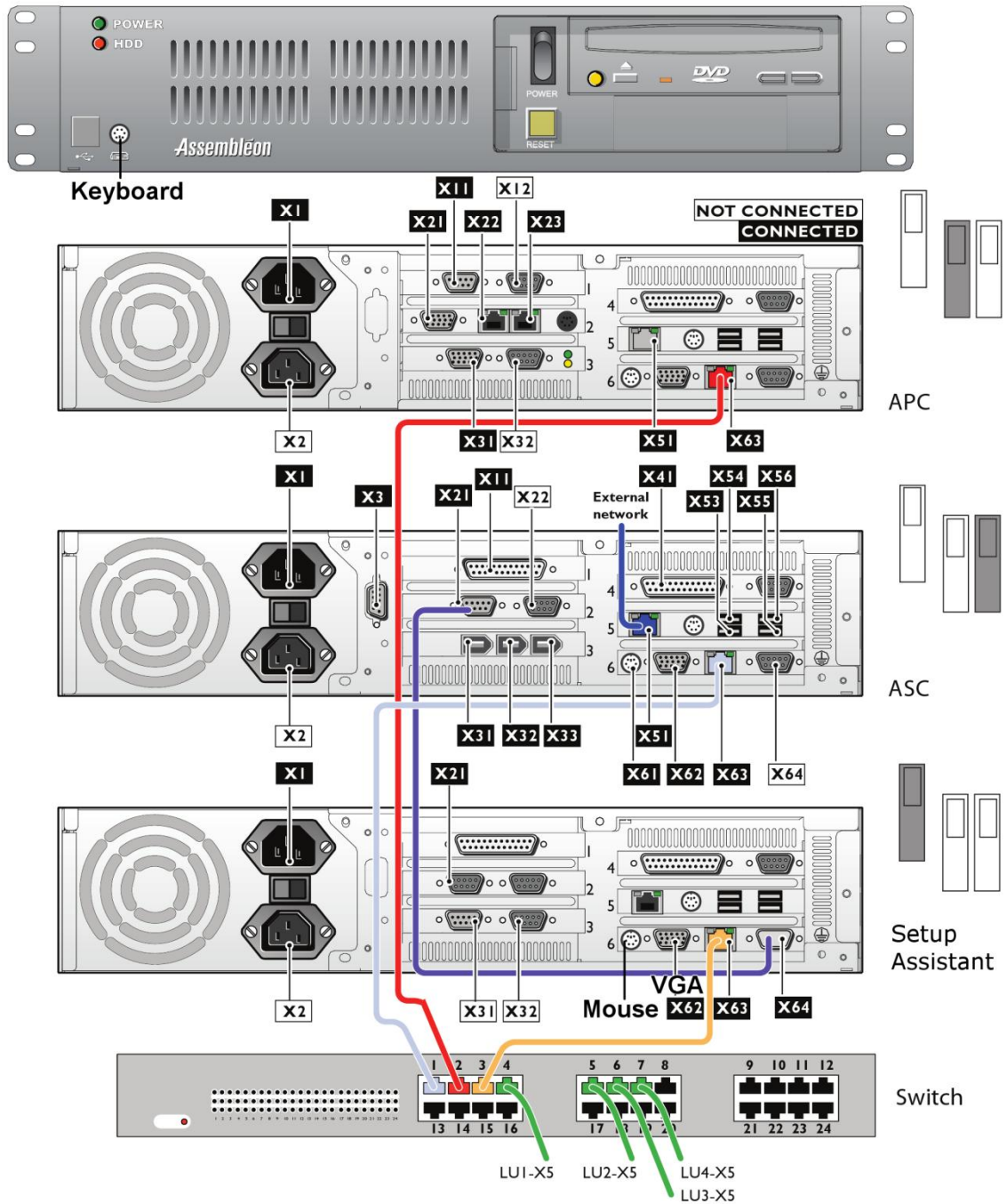


**SA controller connections AX 201 (with external Mouse, keyboard and VGA connection)**
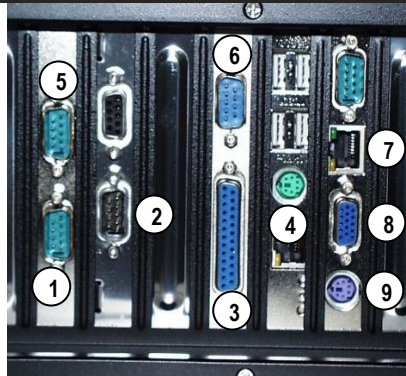


1  COM 3
2  CAN 1B
3  LPT1 report printer (optional)
4  Mouse (optional)
5  COM 4 Barcode printer (optional)
6  COM 2
7  LAN 1 AX Internal
8  VGA (optional)
9  Keyboard (optional)

**SA controller connections AX 3/5**

### 4.1.1 Serial Card (Moxa)

Important! If a (re-)installation of the operating system takes place, then check if there is an update of SI-OSW-509 which may supersede the information in this paragraph. This information is based on the first release of this SI from Feb. 15, 2010, currently the driver of the new serial card is not integrated in the operating system.

Therefore special installation instructions apply if Windows has to be re-installed on SA Loading Units with codes 4022-594-5417**4** (or later) or on 4022-594-1238**4** (or later), these always contain a MOXA CP-102-U serial card. Furthermore this applies to any older controller in which the serial card has to be replaced, since the old card is not available anymore, this will always be a replacement with a MOXA card.

Refer to TAB 6, Installation, paragraph 1.3 Operating System, Windows XPe for further installation instructions of the driver of the MOXA card.

### 4.1.2 Printers

Connect if applicable the optional report printer to the parallel printer connector lpt1. The report printer is only used when Setup Assistant is in 'Lite' mode.)

Connect if applicable the optional barcode printer to COM4. The barcode printer is only used when Setup Assistant is in 'Lite' mode.

**NOTE:** **If an optional barcode and/or report printer is installed, the drivers for those printers must also be installed on the Setup Assistant system controller. Refer to the printer supplier documentation for more information.**

## 4.2 Barcode scanner, base station and power supply

The following barcode scanners are supported:
- DLL6010-R-NM or Dragon (M101, old model)    433MHZ (EUR/APR) or 910MHZ (USA)
- Dragon (M131, new model)    433MHZ (EUR/APR) or 910MHZ (USA)
  (This new model Dragon barcode scanner is not (mechanically) exchangeable with the old model Dragon)
- Firescan D131 (used for the loading unit)

The operating voltage of the scanners are different:
- DLL6010 or Dragon scanner operates on 12V and need a 12V power supply.
- Firescan barcode scanner operates on 5V and need a 5V power supply from the SA system controller.

**⚠WARNING**

> **CAUTION.**
> Laser Radiation. Do not stare into beam.

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### 4.2.1 Barcode scanner battery replacement

Wireless barcode scanner batteries are exhausted when reconditioned is not working. Replace the batteries of the wireless barcode scanner.

1. Inspect replace item for damage.

2. Remove the black rubber cover at the end of the handle of the barcode scanner (1x screw).

3. Make sure rechargeable batteries are used. Apply locally: At Datalogic SBS-3000 Spare Battery Slot

4. Replace the black rubber cover at the end of the handle and use the screw to secure the battery pack to the barcode scanner.

5. Recharge the wireless barcode scanner a least for 30 min or until the indicator says it is fully charged.

6. Follow the instructions to re-configure the barcode scanner and base station

**M101**
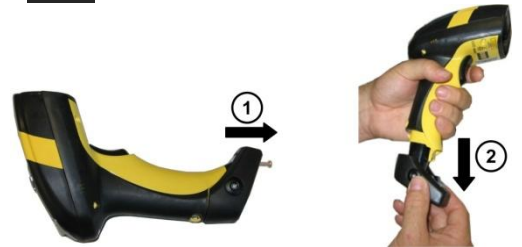
**M131**

### 4.2.2 Replacing the wireless barcode scanner (Dragon)

When replacing the wireless barcode scanner please make sure:

- Inspect replace item for damage.
- Both the base station and the barcode scanner have the same firmware.
- Both the base station and the barcode scanner are using the same frequency (Europe and Asia use 433 MHz, America's use 910 MHz)
- The barcode scanner is re-charged by placing the barcode scanner in the base station for some time (e.g. 30 minutes).

Follow the procedure to match (Configure and Bind) the barcode scanner with the base station, see the 'Configuration' tab: "Barcode scanner configuration".

### 4.2.3 Replacing the wired scanner on LU (Firescan) or cable

**Special Tools and materials**

- Spare barcode scanner
- Paperclip

⚠️**CAUTION**

> **CAUTION.**
> For the power connector on the base station: Inner contact is - (Minus) and outer contact is + (Plus).

**Scanner replacement**

1. Power down the loading unit.

2. Disconnect the COM cable with a paperclip. Fold open and place the end of the paperclip in the small hole on side of the scanner and pull-out the cable (1).

3. Connect the cable to the new Firescan

4. Configure the new barcode scanner according to Tab 5 'Configuration and Software'

**Paperclip hole on Firescan**

**Replacing the cable of the Barcode scanner**

Special Tools and materials

- Spare spiral cable
- Paperclip
- screw-driver

**Cable replacement**

1. Power down the loading unit.

2. Disconnect the barcode scanner (see scanner replacement).

3. Open at the rear side of the loading unit the top shelf door and loosen the connector on the system controller (COM 3).

4. Disconnect the power supply plug (label: PC KB/AT4) at the rear of the scanner cable.

5. Loosen the cable lock.

6. Replace the broken barcode scanner cable with the new cable.

7. Fix the cable with the cable lock to the loading unit.

8. Mount the power supply plug (label: PC KB/AT4) for the barcode scanner to the back of the connector of the scanner cable.

9. Mount the scanner cable (label PC COM3) to COM3 of the system controller.

### 4.2.4 Replacing the Barcode base station (AX-201 & AX 3/5)

**Special Tools and materials**

- Spare base station
- Paperclip
- Allen key (M101)

**Base station replacement M101**

1. Power down the machine.

2. Remove the barcode scanner.

3. Dismount the base station from the bracket, remove 1 Allen screw in the centre of the base station

4. Disconnect the power and COM cable from the base station. To disconnect the COM cable, use a paperclip. Place the end of the paperclip in the small hole on top of the base station and unplug the cable.

5. Take the new base station and remove the lower part from the base station (one Allen screw) Connect the power cable and make sure it remains in place during the mounting of the base station to the bracket.



**Remove Allen screw M101**

6. Connect the COM cable and make sure it is correctly fitted.

7. Mount the base station on the bracket (1 Allen screw in the centre of the base station).

8. Switch on machine

9. To match the scanner and base station follow the procedure described in Tab 5 – Configuration and Software.
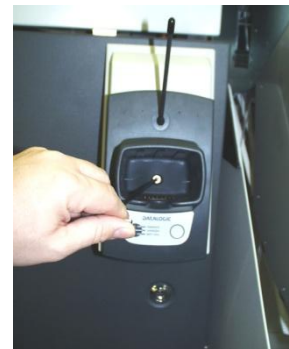


**Hole for disconnecting COM cable M101**

**NOTE:** **Firmware of the scanner and the base station must the same.**

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**Base station replacement M131**

1. Power down the machine.

2. Remove the barcode scanner and antenna (rotate counter clockwise)

3. Dismount the base station from the bracket by sliding up the base station

4. Disconnect the power and COM cable from the base station. To disconnect the COM cable use a paperclip. Place the end of the paperclip in the small hole on top of the base station and unplug the cable.

**Remove com cable M131**

5. Take the new base station and mount the antenna. Connect the power cable and COM cable. Make sure it remains in place during the mounting of the base station to the bracket (slide in on the bracket).

6. Switch on machine

7. To match the scanner and base station follow the procedure described in Tab 5 Configuration and Software.

**NOTE:** **Firmware of the scanner and the base station must the same.**

### 4.2.5 Replacing the power supply for the base station AX-201

**⚠ CAUTION**

**CAUTION.**
For the power connector on the base station: Inner contact is - (Minus) and outer contact is + (Plus).

**Special Tools and materials**
5x large tire wraps, wire-cutter
**Power supply replacement**
1. Power down the machine.
2. Dismount the base station from the bracket (1 Allen screw in the centre of the base station).
3. Disconnect the power cable from the base station.
4. Remove the cover of the left side under the run-in section of the machine (2x).
5. Remove the cover of the left front side of the machine (1) (refer to the Service documents of the AX-201).
6. Cut the 2 tire wraps (2) that are located on the left side under the run-in section.

**Open left side covers AX-201**

7. Remove the power plug that connects the power supply to the mains

8.  Follow the 12 Volt power cable to the base station and cut all tire wraps that hold this cable to the serial cable of the base station.
9.  Remove the broken power supply for the new power supply
10. Place back the mains power plug in the power supply
11. Guide the 12 Volt power cable to the base station and fix the cable to the serial cable with tire wraps. Then mount the base station to the bracket with the screw
12. Fix and secure tight the power supply to the base with 2 large tire wraps
13. Remount the covers

### 4.2.6    Replacing the Barcode Scanner (AX-201 & AX 3/5)
When replacing the Barcode scanner please make sure:
*   Both the barcode base station and the barcode scanner have the same firmware.
*   Both the base station and the barcode scanner are using the same frequency
*   The Barcode scanner is re-charged by placing the scanner in the base station same time (e.g. 30 minutes).
*   Follow the procedure to match (Bind and Configure) the barcode scanner with the base station. Refer to Tab 5 Configuration and Software.

TAB 4 Service

*Assembleon*

# CHAPTER 5    Viewing on SA contoller

It is possible to view on the Setup Assistant controller. There are different possibilities:
- Via an external VGA, keyboard and mouse on the SA system controller. This is always possible, on all machines and LU. Mostly used during installation of SA.
- Via the HUB and a remote desktop. This is possible on:
  - o AX-3/5
  - o AX201 with a RFI connection (CAN connected via the AX 201 system controller)
- Via a remote desktop via the AX-201 control software (only in case the CAN is connected to the SA system controller, not RFI)

## 5.1    Remote desktop via internal network

Open a remote desktop session from the start menu.

Address:      svspro
Username:   superuser
Password:   superuser

## 5.2    Remote desktop via the HUB

Via internal network addresses (x.x.x.32 for SA):
- AX-201: 192.168.1.32
- AX-3/5: 10.0.0.32

Via internet explorer: http://<SA ipaddres>:13080/LoUis/LoUis6.html.
Use Internet Explorer 8.0, furthermore it is required to have Java version 1.6.0_18-b07 installed on the PC which runs the browser.

## 5.3    Remote desktop via the AX-201 control software

Connect a remote desktop. Make sure there is a network connection and all controllers are working correctly.
- Change the user level to "*M&S Engineer*"
- Select "*Maintenance*" and subsequently "*Tools*" and "*aPC Window…*".



**Selecting the aPC window**

- A remote terminal session is started to view the desktop of the APC.
  Log in with user account "*user*" and with password "*user*" and click on the VNC icon that on the desktop of the APC is located.
- Enter "*svspro*" or "*192.168.0.32*". The VNC connection password is "*a*"
- When starting the VNC application it is possible to connect via the internal AX network directly to the Setup Assistant system controller. (password is a).

### 5.4 **External monitor, mouse and keyboard**

Connect a monitor and keyboard to the Setup Assistant system controller. The keyboard can be connected to the front side of the SA controller (see figure). Note that only PS/2 keyboards are allowed. The VGA monitor and a mouse can be connected to rear of the SA controller. Long cables are required to use this items when standing on the front side of the machine.
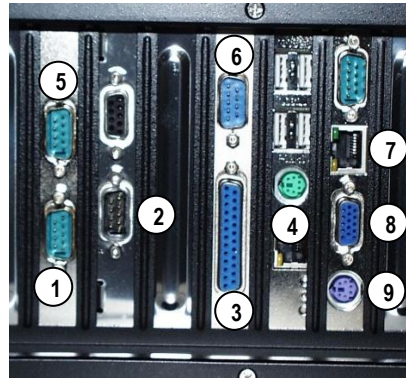


1  COM 3
2  CAN 1B
3  LPT1 report printer (optional)
4  Mouse (optional)
5  COM 4 Barcode printer (optional)
6  COM 2
7  LAN 1 AX Internal
8  VGA (optional)
9  Keyboard (optional)

**SA controller connections AX 3/5**
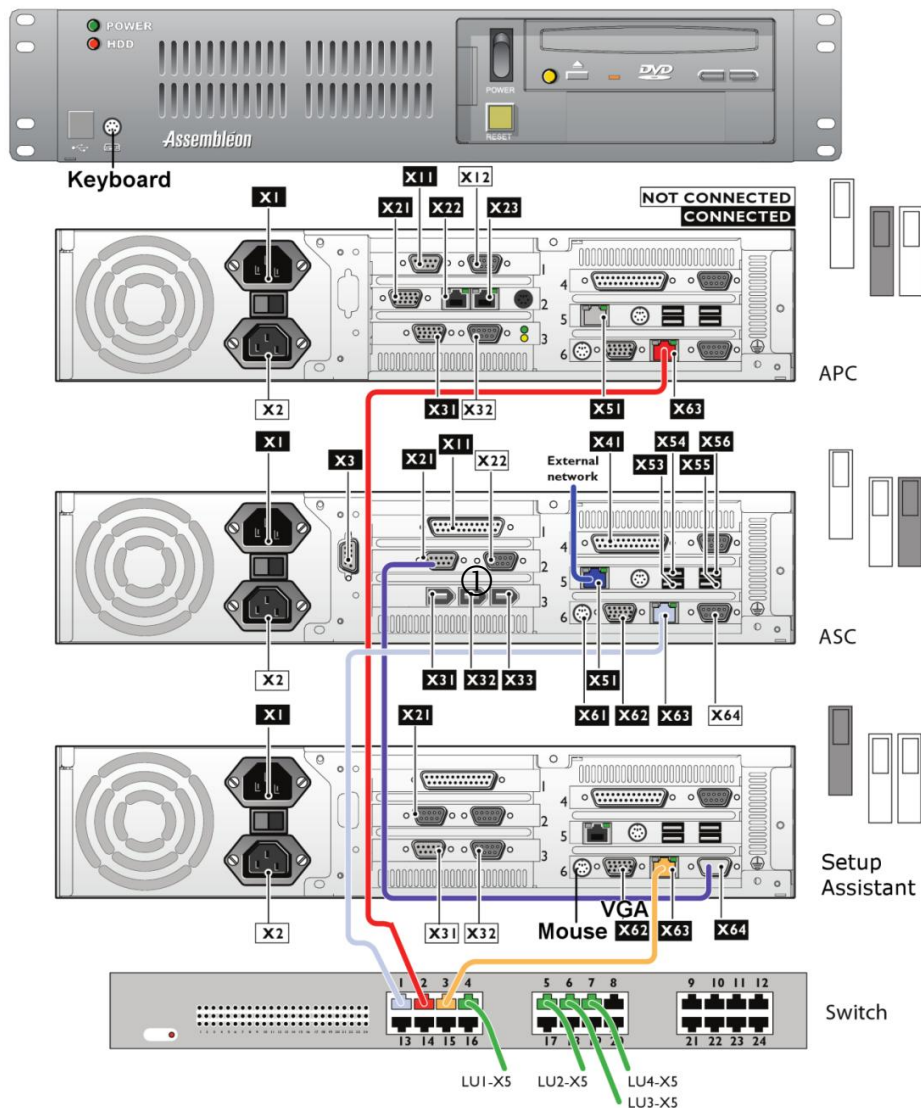


**Keyboard, monitor and mouse connection to SA controller of AX-201**

TAB 4 Service

*Assembleon*

# CHAPTER 6    Drawings & default settings

### 6.1  BIOS Settings of the SA System controllers

For Assistant 2 types of system controllers are used.
- AX-3/5 and the Loading Unit use the Advantech System controller (9498 396 00236)
- AX-201 uses the Advantech Slim System controller (9498 396 01605)
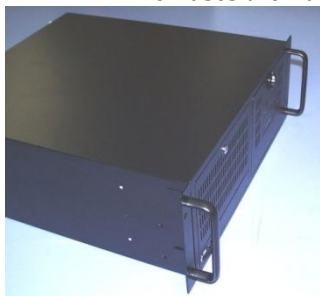
**Advantech Controller (left) and Advantech Slim Controller (right)**

Check BIOS settings procedure
- At power on of the Sa system controller press <DEL> to enter the BIOS setup.
- Use the arrow keys to view the settings and "Advanced BIOS Features"
- Press <ENTER> to edit a setting
- Press <ESC> to return to main menu.
- Use arrow keys and go to "Power Management Setup" and press <ENTER>.
- Change the following item: (scroll down to the bottom of the list)
  - "PWRON after PWR-Fail" must match [On]
- Press <ESC> to return to main menu.
- Press <F10> to save the CMOS settings.
- Answer Y to the question "SAVE to CMOS and Exit (Y/N)?" and press <ENTER>

| Advantech BIOS settings for  SA system Controllers | | | |
|---|---|---|---|
| IDE HDD AUTO DETECTION | Let Bios search for type of hard disk, accept standard choices. | | |
| STANDARD CMOS FEATURES | | | |
| Time | <Set Time> | IDE Secondary Slave | None |
| Date | <Set Date> | Drive A: | None |
| IDE Primary Master | <filled by 'ide hdd auto detection'> | Drive B | None |
| IDE Primary Slave | <filled by 'ide hdd auto detection'> | Video | EGA/VGA |
| IDE Secondary Master | None | Halt on | All, but keyboard |
| ADVANCED BIOS FEATURES | | | |
| CPU feature | Press Enter | Boot up floppy seek | Disabled |
| X Thermal Management | Thermal Monitor 1 | Boot up Numlock Status | On |
| Virus Warning | Disabled | Gate A20 option | Fast |
| CPU L1 & L2 Cache | Enabled | Typematic rate setting | Disabled |
| Quick Power on Self Test. | Enabled | X Typematic rate (chars/sec) | 6 |
| First Boot Device | USB-FDD | X Typematic delay (msec) | 250 |
| Second Boot Device | CDROM | Security option | Setup |
| Third Boot Device | HDD-0 | APIC Mode | Enabled |
| Boot Other Device | Enabled | NPS Version Control For OS | 1.4 |
| Swap Floppy drive | Disabled | | |
| ADVANCED CHIPSET FEATURES | | | |
| DRAM Timing Selectable | By SPD | Memory hole at 15M-16M | Disabled |
| X CAS Latency Time | 2 | Delayed Transaction | Enabled |

TAB 4 Service

**Assembleon**

| Advantech BIOS settings for  SA system Controllers | | | |
|---|---|---|---|
| X Active to Precharge Delay | 6 | Delay Prior to Thermal | 16 Min |
| X DRAM RAS# to CAS# Delay | 3 | Continuous LAN Retry | Enabled |
| X DRAM RAS#  Precharge | 3 | AGP Graphics Aperture size | 64 |
| Memory Frequency For | Auto | Display Cache frequency | 133MHz |
| System Bios Cacheable | Enabled | FWH write protection | Disabled |
| Video Bios Cacheable | Disabled | On chip Video window size | 64MB |
| ** On-chip VGA settings ** | | | |
| On-Chip VGA | Enabled | Boot Display | Auto |
| On-Chip Frame Buffer Size | 8MB | | |
| INTEGRATED PERIPHERALS | | | |
| On-Chip Primary PCI IDE | Enabled | Onboard LAN2 Device | Enabled |
| IDE Primary Master PIO | Auto | Init Display First | PCI Slot |
| IDE Primary Slave PIO | Auto | IDE HDD Block Mode | Enabled |
| IDE Primary Master UDMA | Auto | Onboard FDC Controller | Enabled |
| IDE Primary Slave UDMA | Auto | Onboard Serial Port 1 | 3F8/IRQ 4 |
| On-Chip Secondary PCI IDE | Enabled | Onboard Serial Port 2 | 2F8/IRQ 3 |
| IDE Secondary Master PIO | Auto | UART mode select | Normal |
| IDE Secondary Slave PIO | Auto | X RxD , TxD Active | Hi,Lo |
| IDE Secondary Master UDMA | Auto | X IR Transmission Delay | Enabled |
| IDE Secondary Slave UDMA | Auto | X UR2 Duplex Mode | Half |
| USB controller | Enabled | X Use IR Pins | IR-Rx2Tx2 |
| USB 2.0 Controller | Enabled | Onboard Parallel Port | 378/IRQ 7 |
| USB Keyboard Support | Disabled | Parallel Port Mode | SPP |
| USB Mouse Support | Disabled | X EPP Mode Select | EPP1.7 |
| AC97 Audio | Auto | X ECP Mode Use DMA | 3 |
| Onboard LAN1 Device | Enabled | | |
| POWER MANAGEMENT SETUP | | | |
| Power-Supply Type | ATX | HDD Power down | Disabled |
| ACPI function | Enabled | Soft-Off by PWR-BTTN | Instant off |
| Power management | User define | CPU THRM-Throttling | 50% |
| Video Off Method | DPMS | PowerOn by LAN | Enabled |
| Video Off in suspend | Yes | PowerOn by Modem | Enabled |
| Suspend type | Stop Grant | PowerOn by Alarm | Disabled |
| MODEM Use IRQ | NA | X Date(of Month) Alarm | 0 |
| Suspend mode | Disabled | X Time(hh:mm:ss) Alarm | 0 :0 : 0 |
| ** Reload Global Timer Events ** | | | |
| Primary IDE 0 | Disabled | FDD / COM / LPT port | Disabled |
| Primary IDE 1 | Disabled | PCI PIRQ (A-D)# | Disabled |
| Secondary IDE 0 | Disabled | PWRON After PWR-Fail | On |
| Secondary IDE 1 | Disabled | | |
| PNP/PCI CONFIGURATION | | | |
| PNP OS Installed | Yes | IRQ-12 | Legacy ISA |
| Reset Configuration Data | Disabled | IRQ-14 | PCI/ISA PnP |
| Resources controlled by | Manual | IRQ-15 | PCI/ISA PnP |
| IRQ-3 | Legacy ISA | DMA-0 | PCI/ISA PnP |
| IRQ-4 | Legacy ISA | DMA-1 | PCI/ISA PnP |
| IRQ-5 | PCI/ISA PnP | DMA-3 | PCI/ISA PnP |
| IRQ-7 | Legacy ISA | DMA-5 | PCI/ISA PnP |
| IRQ-9 | PCI/ISA PnP | DMA-6 | PCI/ISA PnP |
| IRQ-10 | PCI/ISA PnP | DMA-7 | PCI/ISA PnP |

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**Assembleon**

| Advantech BIOS settings for SA system Controllers | | | |
|---|---|---|---|
| IRQ-11 | PCI/ISA PnP | PCI/VGA palette snoop | Disabled |
| PC HEALTH STATUS | | | |
| CPU warning temperature | Disabled | ACPI Shutdown Temperature | Disabled |
| Frequency / Voltage Control | | | |
| Auto Detect PCI Clk | Disabled | CPU clock / spread spectrum | Disabled |

## 6.2 Default COM settings

COM settings can be verified on the SA controller on the following location:
C:\Program Files\assembleon\SetupAssistant\tomcat\webapps\scanUI\WEB-INF\classes\contexts\applicationContext.properties

| Default COM port settings for AX-series | |
|---|---|
| Bits per second | 9600 |
| Data bits | 8 |
| Parity | None |
| Stop bits | 1 |
| Flow control | None |

## 6.3 Windows XPe license

The operating system for the Setup Assistant software is Microsoft Windows XP™. Each Windows XPe software installation requires a 'Certificate of Authenticity' (CoA), a small sticker to be placed on the loading unit or placement machine with the SA system controller. Check if the Windows XPe license if this license/sticker is placed according the specification. Place the sticker on the appropriate place.
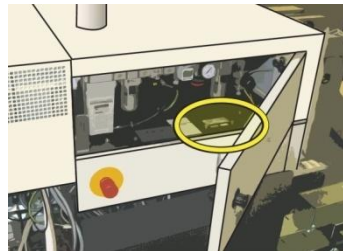


**Location of the Windows XPe license for Setup Assistant Loading Unit**
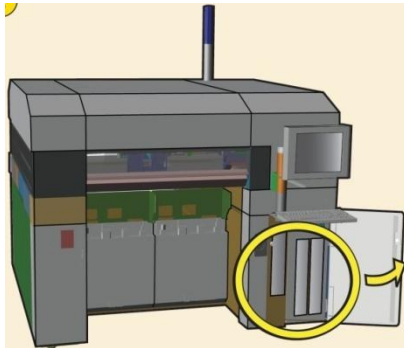
**Location of XPe license for SA on AX-201**
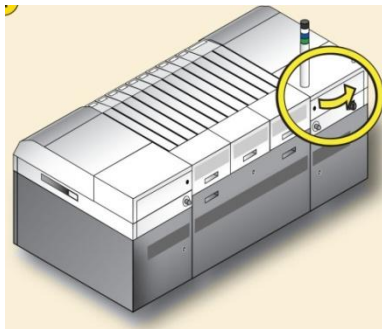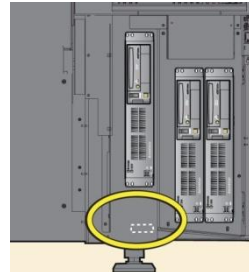


**Location of XPe license for SA on AX-3/5**

> **NOTE:** **Placing the sticker on the Setup Assistant system controller is not recommended because when replacing the broken Setup Assistant controller would require a new license Windows XPe**

## 6.4  Trolley control board settings

⚠️**CAUTION**

**CAUTION.** ESD SENSITIVE ELECTRONICS.
**Electro Static Discharge may cause damage to electronics. Work in an ESD safe environment or use ESD preventive measures.**
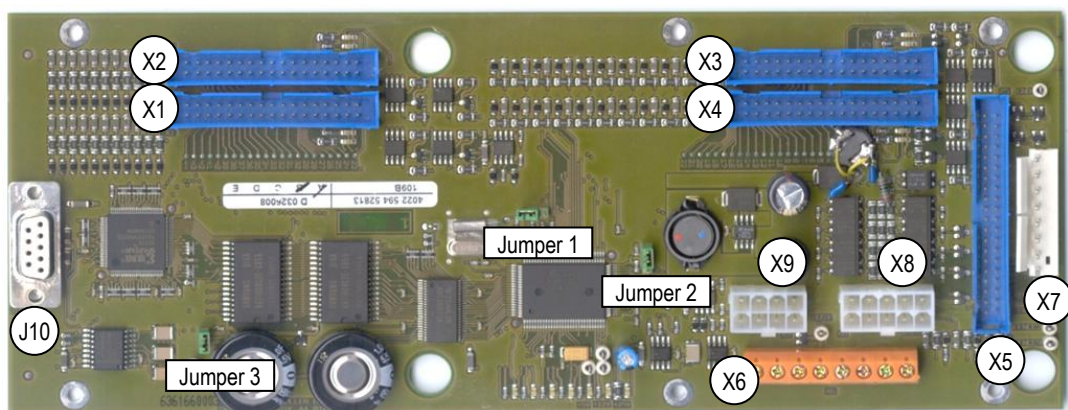


| | | | | |
|---|---|---|---|---|
| X1 | Feeder section 1 | X6 | Power connection ACM-GEM trolley |
| X2 | Feeder section 2 | X7 | Power connection FCM II –A series trolley |
| X3 | Feeder section 3 | X8 | LU interface |
| X4 | Feeder section 4 | X9 | -     (empty) |
| X5 | To trolley interface AX/FCM | J10 | Service purpose (firmware download) |

**Connectors and jumpers on trolley controller board**

TAB 4 Service

**Assembleon**

| Jumper settings on trolley controller board | | | | |
|---|---|---|---|---|
| **Function** | **Jumper 2** | **Jumper 3** | | **Jumper 4** |
| | **1 - 2** | **1 – 2** | **2 – 3** | **1 – 2** |
| Normal (SA) operation | open | closed | open | closed |
| Test-mode operation | closed | closed | open | closed |
| Firmware download operation | X | open | closed | closed |
| Battery disconnected from RAM (Clear non volatile memory). | X | X | X | open |
| | | | | X = Jumper state is irrelevant |

**NOTE:** **Before changing a jumper, remove all power from the TCB. Otherwise the change of jumper will not be noticed.**

TAB 4 Service

### 6.4.1 TCB LED functions
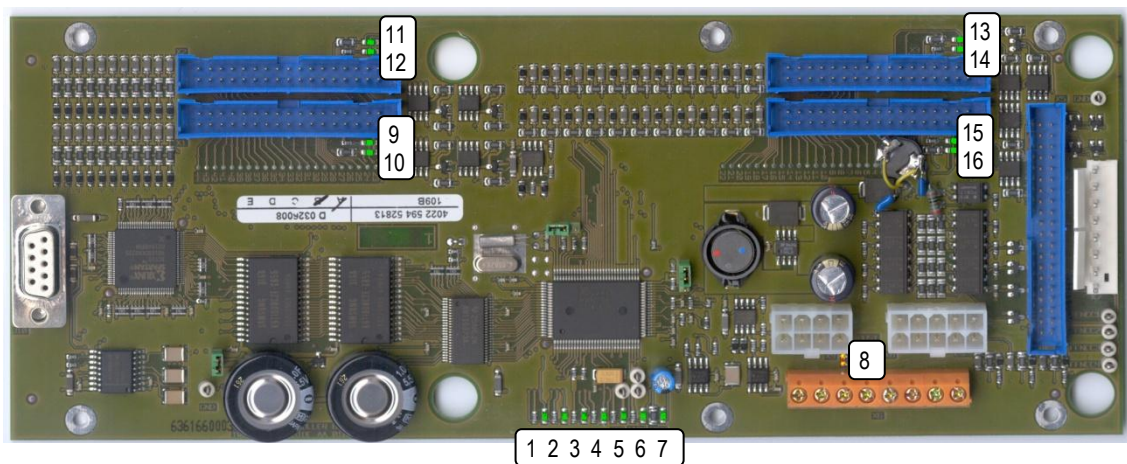


| | | | |
|---|---|---|---|
| 1 - 4 | See LED indication table | 11 | 12 Volt Feederbank 2 |
| 5 | 5 Volt | 12 | 24 Volt Feederbank 2 |
| 6 | 12 Volt | 13 | 12 Volt Feederbank 3 |
| 7 | 24 Volt | 14 | 24 Volt Feederbank 3 |
| 8 | ACM busy signal | 15 | 12 Volt Feederbank 4 |
| 9 | 12 Volt Feederbank 1 | 16 | 24 Volt Feederbank 4 |
| 10 | 24 Volt Feederbank 1 | | |

| LED indication on TCB | | | | | |
|---|---|---|---|---|---|
| **Main state** | **Process** | **LED1** | **LED2** | **LED3** | **LED4** |
| Start-up | Upon reset | Off | Off | Off | Off |
| | FPGA download | On | On | On | On |
| | FPGA download failed | Off | On | Off | Off |
| | FPGA download failed | Off | Off | On | Off |
| | FPGA download failed | Off | Off | Off | On |
| | Memory test | On | Off | Off | Off |
| | RAM test failed | On | Off | On | Off |
| | Flash test failed | On | Off | Off | On |
| Application running | Application running | 0.5 Hz | - | - | - |
| | Interrupts disabled | 0.5 Hz | On | - | - |
| | Interrupt handler active | 0.5 Hz | - | On | - |
| | Data to transmit via UART1 | 0.5 Hz | - | - | On |

### 6.4.2 Power down detection behavior

The control process is shut down if the power continues to drop. A reboot of the TCB occurs if the power returns.

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### 6.5 Drawings of AX-3/5

#### 6.5.1 Data board connections
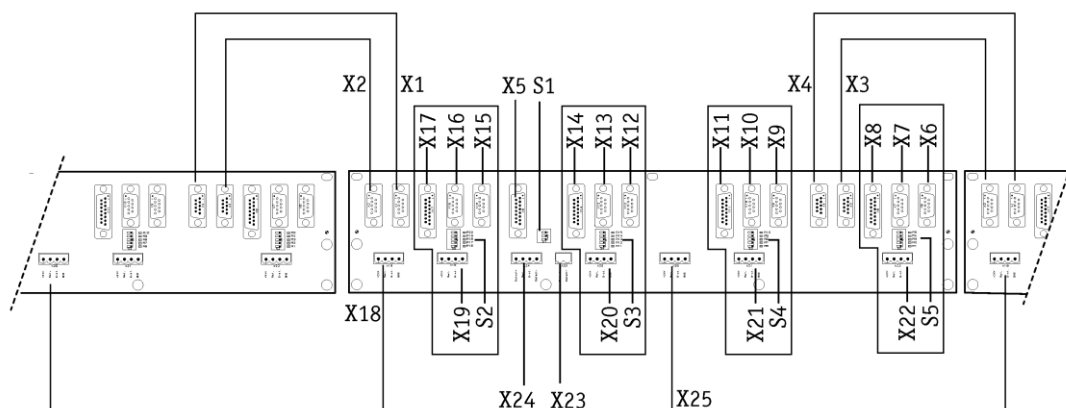


**Data board, connections**

| Data board Connection | Description |
|---|---|
| X1 | CAN bus connection to next segment |
| X2 | Busy connection to next segment |
| X3 | Busy connection to previous segment, or transport controller |
| X4 | CAN bus connection to previous segment |
| X5 | Trolley slot address CAN connection |
| S1 | Dip switches for trolley slot addressing |
| X18 | Safety circuit connection to next segment |
| X23 | Safety circuit detection connection to base CAN module |
| X24 | Safety circuit connection to trolley lift |
| X25 | Safety circuit connection to previous segment |
| X6, X9, X12, X15 | Busy connection to placement controller |
| X7, X10, X13, X16 | CAN connection to placement controller |
| X8, X11, X14, X17 | Placement robot slot address connection to placement controller |
| S2, S3, S4, S5 | Dip switches for placement robot slot addressing |
| X19, X20, X21, X22 | Safety circuit connection to placement robot |

#### 6.5.2 Trolley addressing

| Dip switch settings | | | | |
|---|---|---|---|---|
| Trolley slot | Dip switch | 1 | 2 | 3 |
| 1 | S1 | 1 | 0 | 0 |
| 2 | S1 | 0 | 1 | 0 |
| 3 | S1 | 1 | 1 | 0 |
| 4 | S1 | 0 | 0 | 1 |
| 5 | S1 | 1 | 0 | 1 |
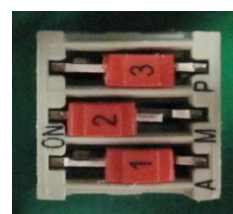


**Trolley dipswitch S1**

#### 6.5.3

### 6.5.4 Trolley lift 4022-510-7995X,diagram

TAB 4 Service

*Assembleon*
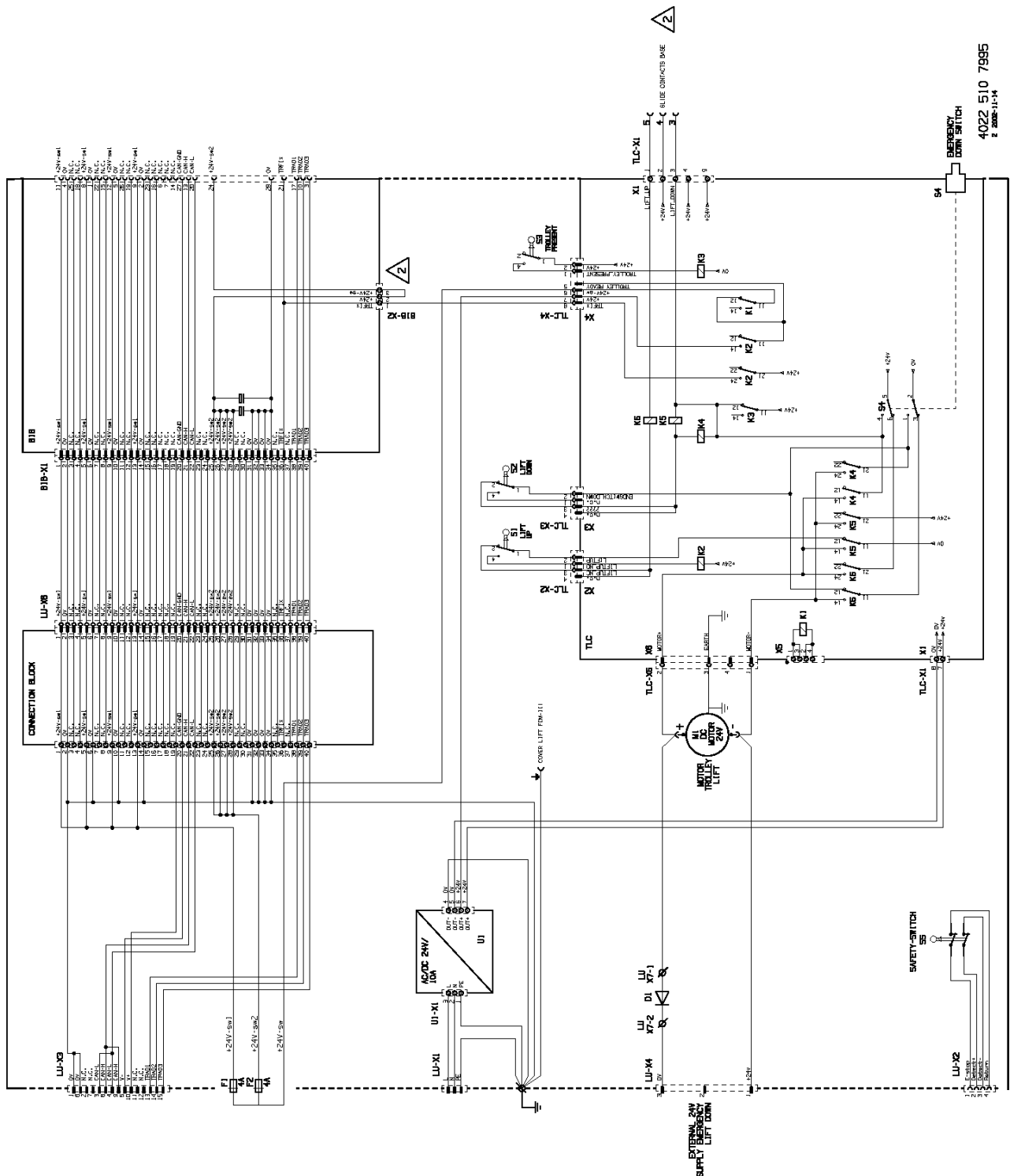
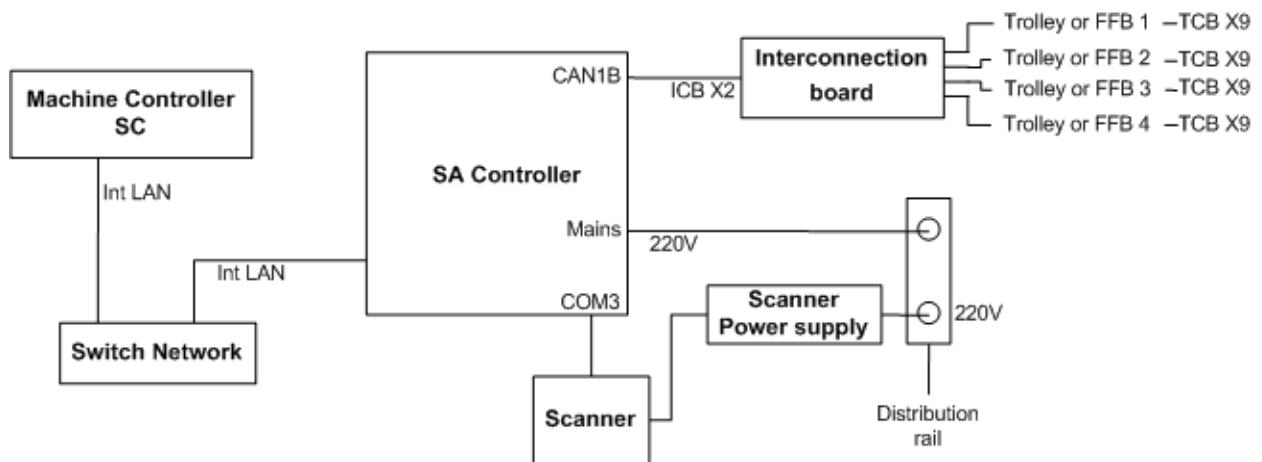### 6.5.5 Trolley lift 4022-510-8300X, diagram
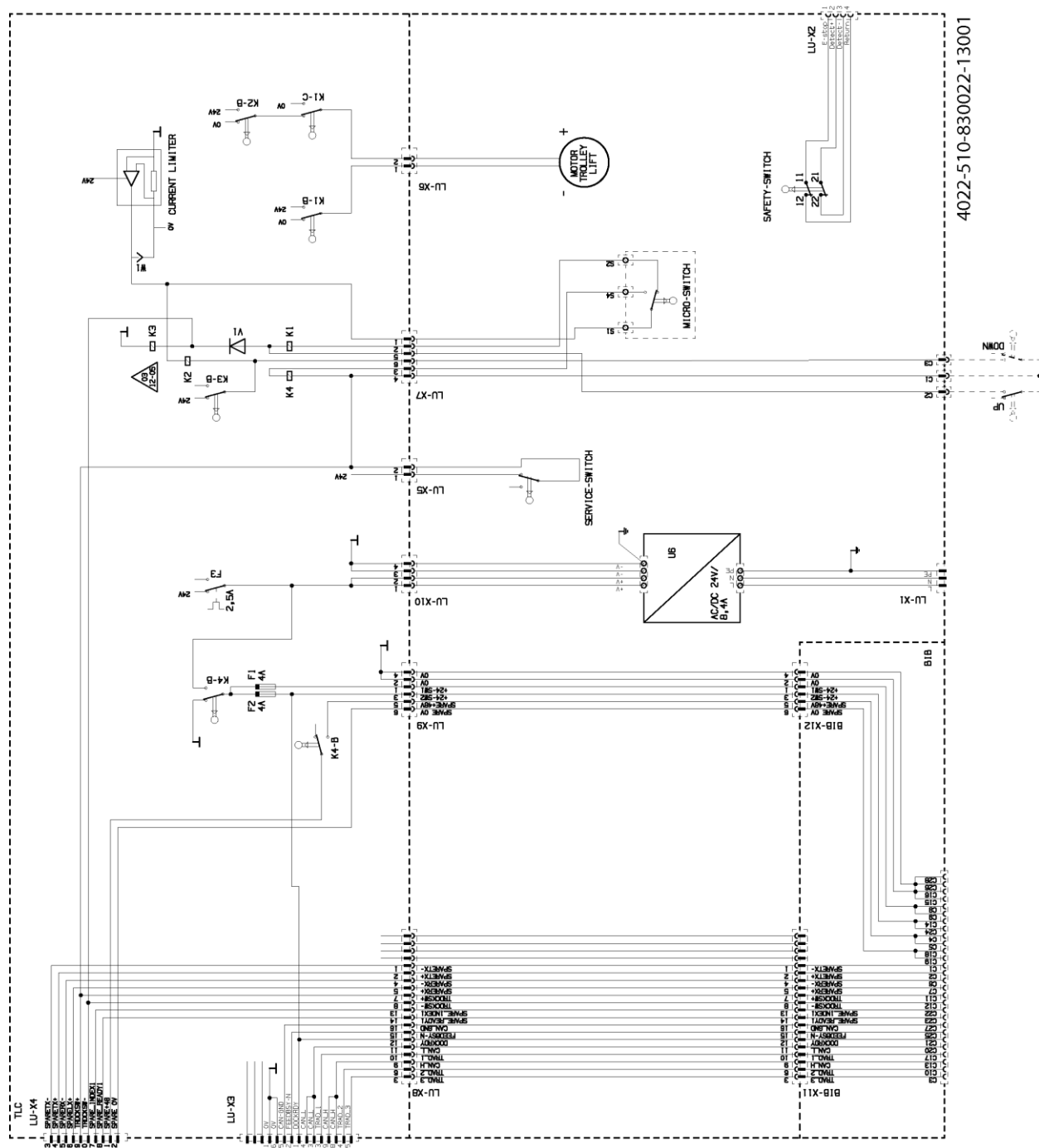
### 6.5.6 Setup Assistant controller block diagram AX-3/5
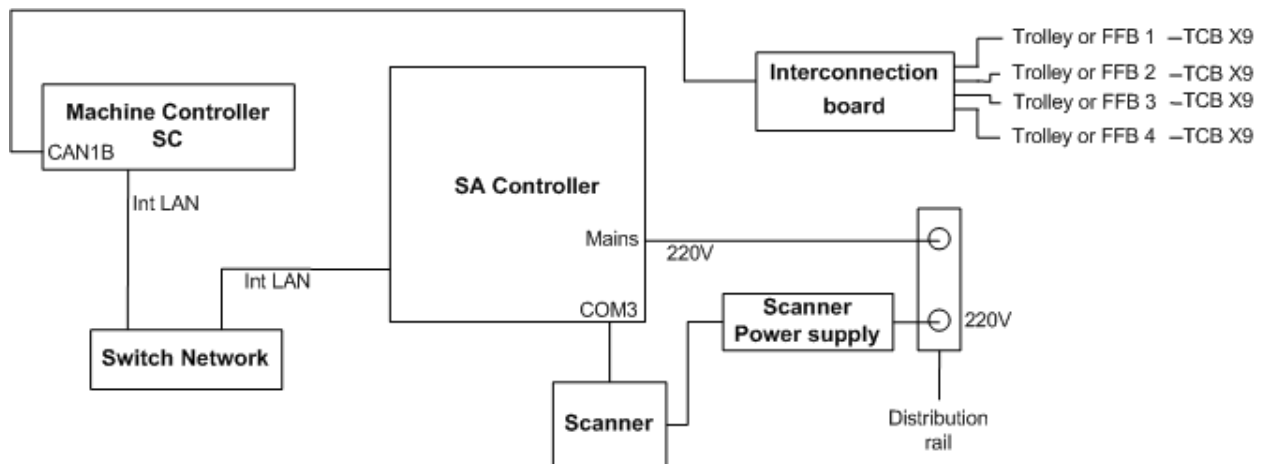


**Setup Assistant controller block diagram RFI**



**Setup Assistant controller block diagram Not RFI (old situation)**

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*Assembleon*

## 6.6 Drawings of AX-201

### 6.6.1 Setup Assistant controller block diagram AX-201



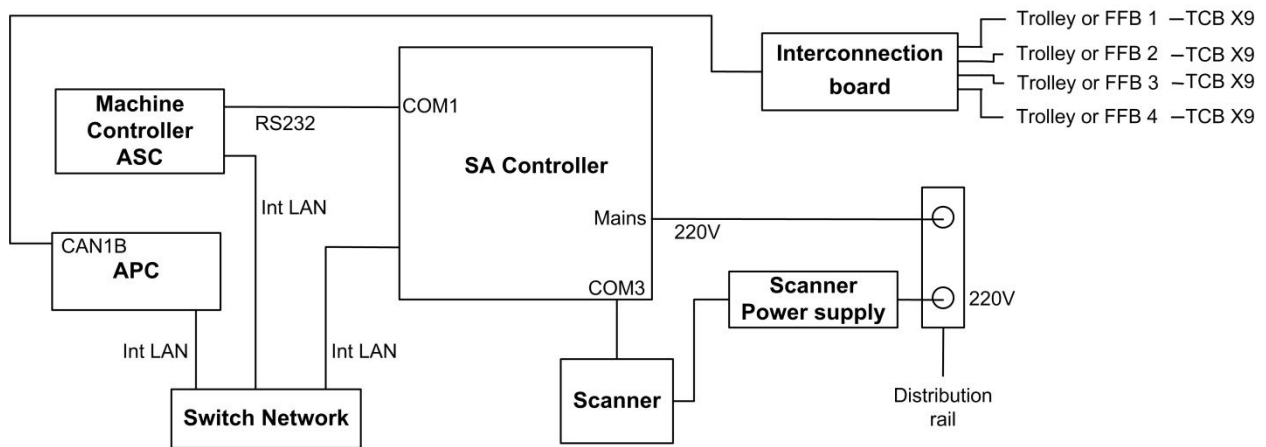**Setup Assistant controller block diagram RFI**
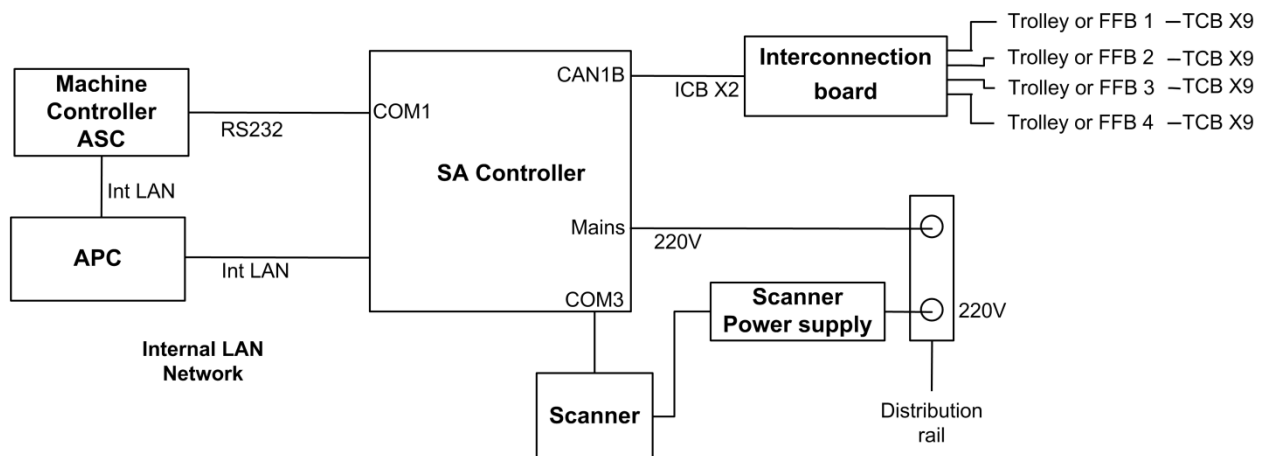


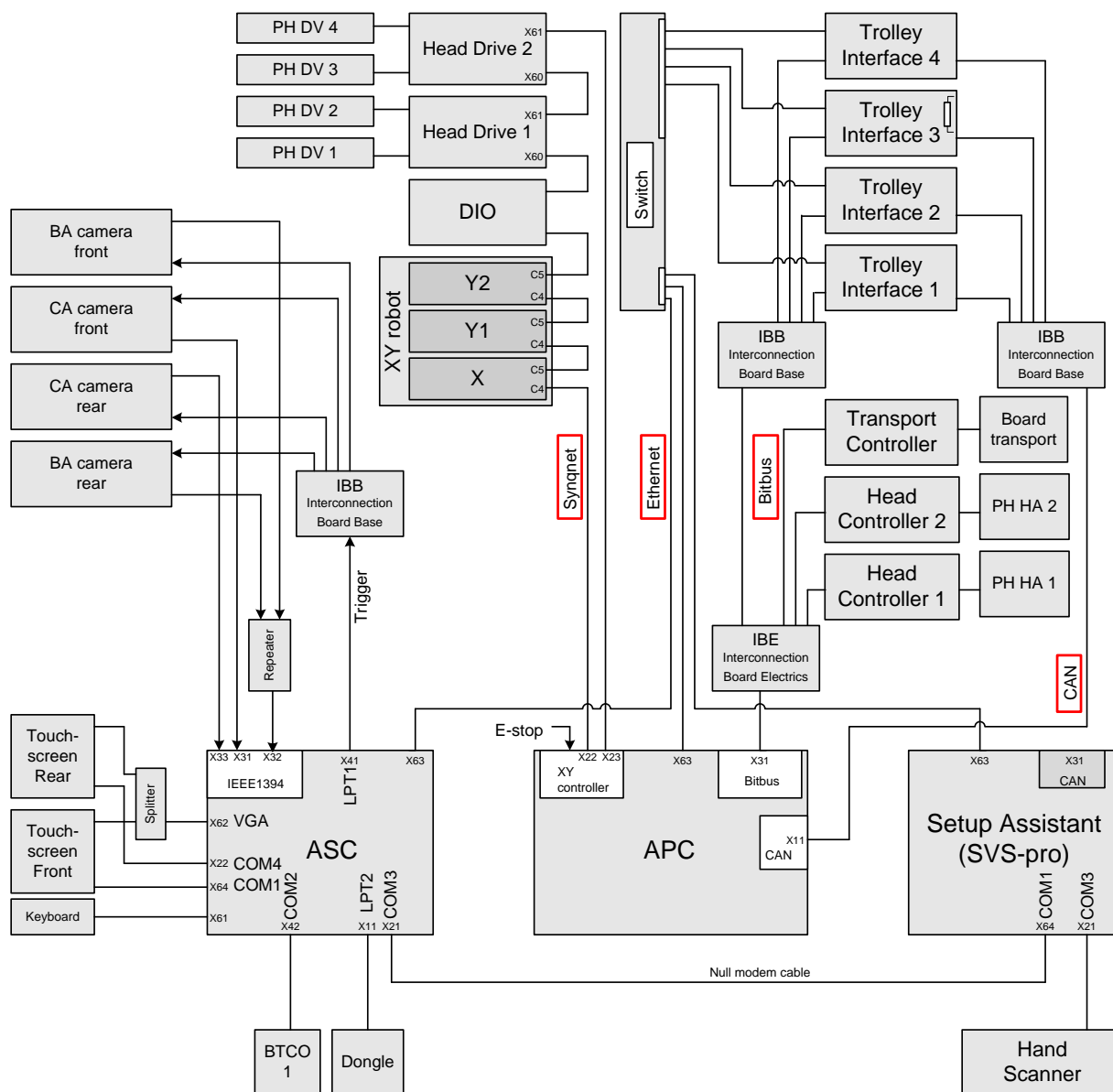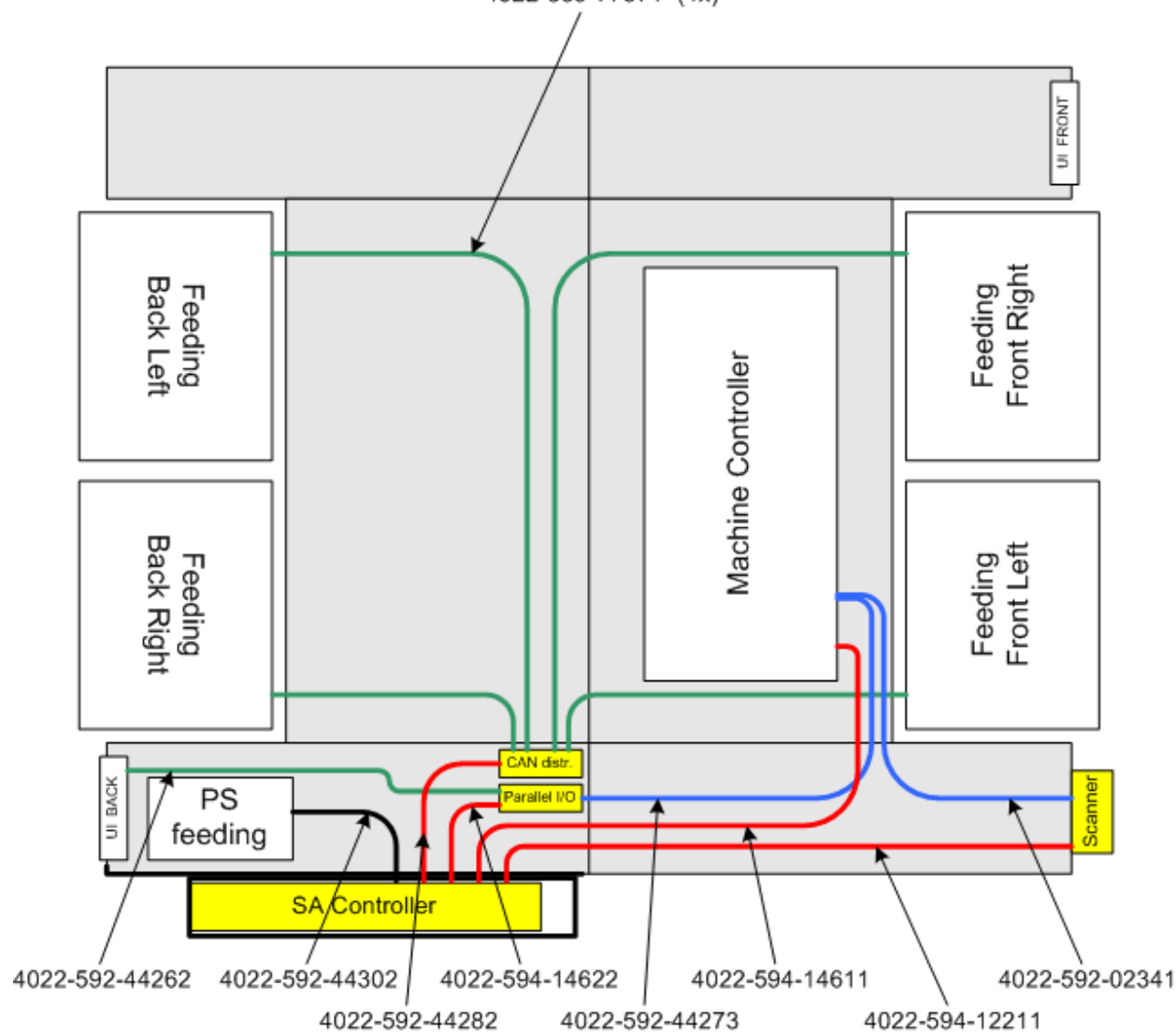**Setup Assistant controller block diagram Not RFI (old situation)**

### 6.6.2 AX-201 Communication diagram

TAB 4 Service

**Assembleon**

### 6.6.3 Machine configuration MG

Option Manual
Setup Assistant

TAB 4 Service

# CHAPTER 7   Spare parts

Order codes and more up-to-date information on spare part can be found on:
http://www.assembleon.com.
Select "Support => Self Support => Part & Manuals Catalog"
Spare parts for SA are:

| Spare part | Picture | Spare part | Picture |
|---|---|---|---|
| SA system controller (Advantech) for ACM, AQ-1, AQ-2, AX-3/5, D-9, GEM/MG Series , Loading Unit (PA2090/21) 9498-396-00236 |  | SA system controller (Advantech) for AX-201 9498-396-01605 |  |
| RF scanner type Dragon For EU/ASIA and for USA 910Mhz: 9498-396-02005 433Mhz: 9498-396-02305 |  | Base station for RF scanner: 910 MHz (USA) 9498-396-025006  433 MHz (EU/ASIA) 9498-396-02306 |  |
| Touch screen display  4022-594-12921 |  | | |
| Barcode sets: contain stickers with barcodes for positions and lanes to support a production machine, a (tray) trolley or a twin tape feeder for SA | | SA upgrade kits for different machines | |
| Loading Unit II SCANNER type Firescan 9498-396-00684 |  | POWER SUPPLY Loading Unit (PA2090/20 /26) 9498-396-00749 |  |
| TROLLEY CABLE 9498-396-00863 |  | CAN distribution board 9498-396-00519 |  |
| Loading Unit II POWER SUPPLY (PA2090/21) 9498-396-00865 |  | TCB firmware download cable 9498-396-01103 |  |
| TROLLEY CONTROLLER BOARD 9498-396-00866 | 1 per trolley  | Radisys Power Supply 9498-396-01286 |  |
| Feeder interface PCB for Loading Unit 9498-396-01168 |  | | |

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# Assembleon

# Option Manual Setup Assistant Tab 5 Configuration & Software

## Table of Contents

**TAB 5 Configuration & Software**

## CHAPTER 1   Functional Description

To fully integrate Setup assistant on the shop floor with all its features it is advised to take notice of all available functions. These functions will be described in following chapters. Check the features that are required and use the configuration table. Simply switching on certain features may cause production problems so follow the procedures described in Chapter 7 *Pre-installation*.
Setup Assistant software features are configured via different files:
- Setup configuration File: Most common settings like barcode definitions and settings are configured.
- Second Source and alternative parts
- Barcode label printing definition

**NOTE:** **The Setup Assistant software is installed with default settings (second source list and configuration).**

The configuration of the placement machine(s) must be identical to the configuration of the loading unit. Changes in the Setup Assistant configuration file will take effect immediately.

**NOTE:** **It is advised to first test modifications of the configuration  on a loading unit.**

### 1.1     Setup Alternates (Specific Loading Unit option)

If *Setup alternates* is enabled on the loading unit then feeders/reels with alternate part numbers will be flagged as missing when setting up a trolley. Hence these feeders/reels must be setup correctly before the setup is declared valid on the Loading Unit. If *Setup alternates* is disabled then feeders/reels with alternates part numbers are not needed to be set up.

### 1.2     Setup Assistant software version

Click the Settings button on Required Setup, Actual Setup or Alarms to see the version:



**Checking the software version of Setup Assistant.**

TAB 5 Configuration & Software

# CHAPTER 2 Configuration of SA

Configuration of Setup Assistant can be done via the GUI of Setup Assistant.
Pres *Ctrl+Shift+c* to open the configuration screen. The settings are explained in §*0 3.1*
*General configuration*
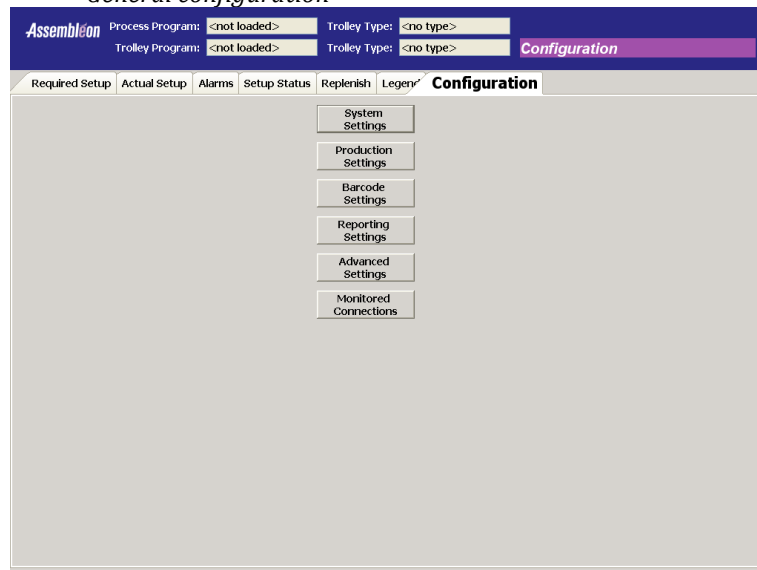


**Configuration screen**

## 2.1 Configuration and log file location

Configuration and log-files can be opened via the Windows Start: <Start> → <Programs> → <Assembléon> → <Setup Assistant>
There are 2 sub menu's:

1. <config>: contains short-cuts to all configuration files to be used in Setup Assistant.

   - Configuration.xml: contains the general configuration of Setup Assistant.

   - FeederSupport.xml: contains the information on used feeder and tray names and related information for Setup Assistant

   - Splicedata.xml: contains the related details for splice detection

   - parts.sec: In the sub-menu secondsource the second source file: parts.sec, can be opened (only on the Loading Unit)

   - label: In the sub-menu label the label definition can be opened to modify the used label definition to be used for barcode printing

2. <tomcat><logs>: contains short-cuts to all log files that are used and created by Setup Assistant.

The FeederSupport and SpliceData files are in xml format and can be edited with *XMLmarker* that is also installed on the Setup Assistant system controller.

**NOTE:** **It is not recommended to manually edit the Configuration.xml file. Use the configuration screen of the SA GUI instead. It is advised to first test the modified file on the loading unit to make sure it works without problems.**

**NOTE:** **The configuration file on the machine must be identical to the configuration file on the loading unit. Changes in the Setup Assistant configuration file will take effect immediately.**
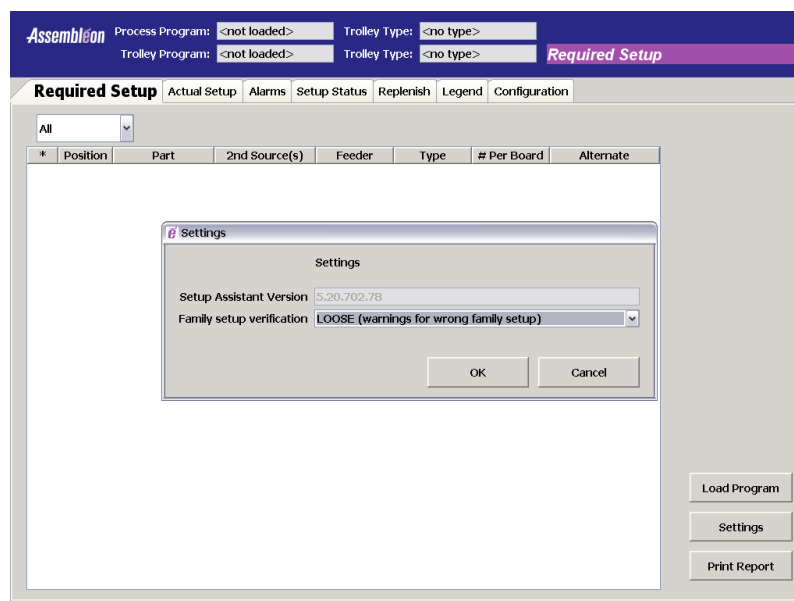
TAB 5 Configuration & Software

## 2.2    Diagnostics and configuration help

There is a SA diagnostics and configuration tool available. The following can be done with it:

1.  SA model
2.  TrolleyServer Model
3.  SA GUI
4.  Configuration
    a.  Web services
    b.  Machine adapter
    c.  Configuration conversion
5.  Save diagnostics

Open the tool via  <Start> - <Programs> - <Assembléon> - <Setup Assistant> - <Setup Assistant>

Or open a web browser and enter this address: http://svspro/sacore
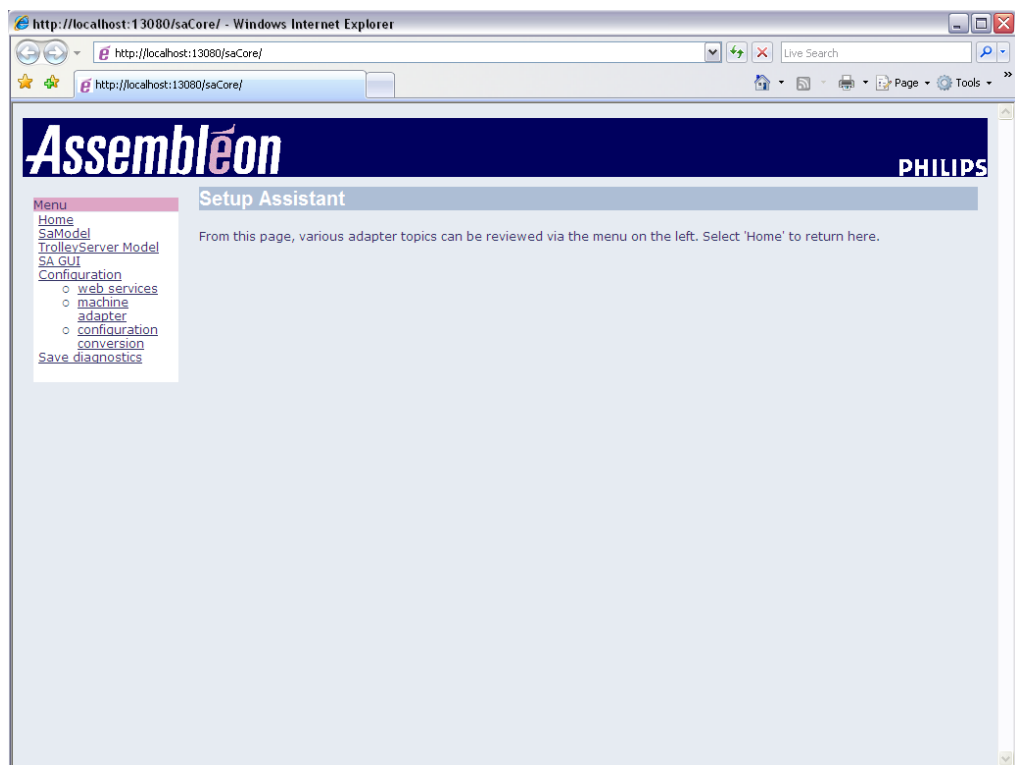


__SA diagnostics and configuration tool__
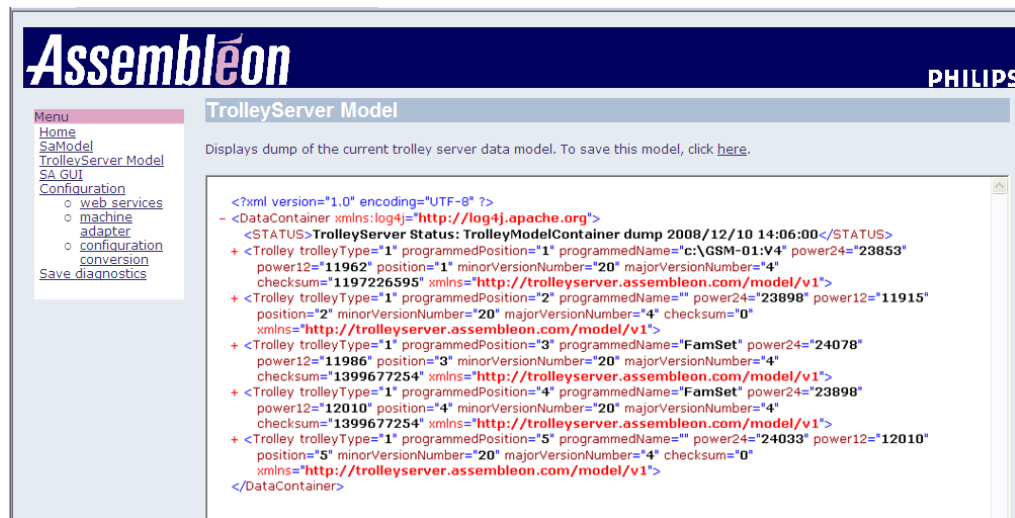
### 2.2.1    SA model
Displays dump of the current data model.

TAB 5 Configuration & Software

### 2.2.2 Trolley server model (trolley status)

Here it is possible to check if trolleys are connected, what the power levels (12 and 24 volts) are and what firmware version is loaded on the TCB in the trolley.
When all Trolley positions are collapsed (click on the minus symbol) only the trolley position, trolley type, power levels and firmware versions are visible.

| Trolley status | | |
|---|---|---|
| **Field** | **Value** | **Explanation** |
| trolleyType | 1 - 8 | Indicates the trolley type that is connected to the machine.<br><br>1: FCMII feeder trolley  5: N.A.<br>2: ACM feeder trolley  6: ACM tray trolley<br>3: FES Cart  7: GEM Tray support<br>4: A-Series feeder trolley  8: A-series tray trolley |
| programmedPosition | 1 - 5 | This value is the position that is programmed in the trolley |
| programmedName | | |
| power24 | 0-25000 | 24 volts power level in mV (milli Volts) |
| Power12 | 0-13000 | 12 volts power level in mV (milli Volts) |
| position | 1-5 | the position where the trolley is placed on the machine |
| minorVersionNumber | | minor version of the firmware version in the trolley control board. Combined with the major number it is the firmware version |
| majorVersionNumber | | major version of the firmware version in the trolley control board. Combined with the minor number it is the firmware version |



Trolley status screen

### 2.2.3 SA GUI

Launches the user interface of Setup Assistant

2.2.4 **Configuration management items**

Here an overview of different SA settings, addresses and a conversion tool to convert SVS-pro settings can be found. There are three items:

- Web services.
- Machine adapter.
- Configuration conversion.

2.2.5 **Save Diagnostics**

A diagnostics dump of unknown errors or crashes can be made with the save diagnostics item or via :

<Start> - <Programs> - <Assembléon> - <Setup Assistant> - <diagnostics>

When selecting the utility a full diagnostics dump is created which can be saved in a zip-file. The default save location is the desktop.
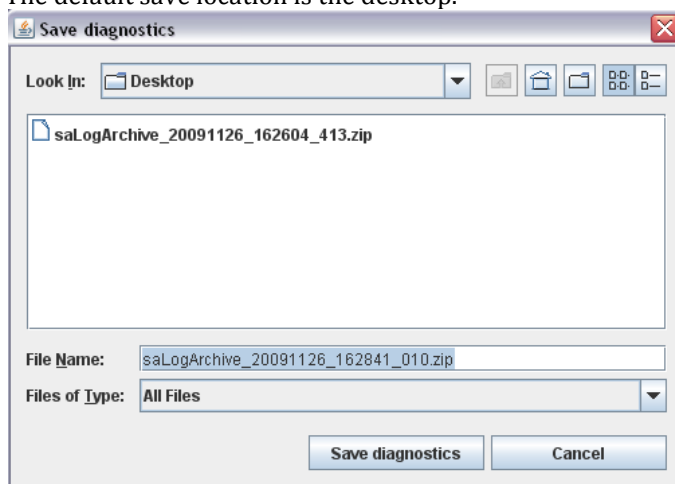


**Save diagnostics screen**

## 2.3 Remote control

It is possible to access the Setup control software via a Web browser (e.g. Internet Explorer).

Before opening:  http://<hostname or SA ipaddres>:13080/LoUis/LoUis6.html.

Make sure:

- The system running the SA Software must have "Java VM 1.6" installed.
- SA software and controller are running

## 2.4 Setup Assistant Barcode Testing

With the Setup Assistant Barcode Settings configuration screen it is possible to define and test the barcode configuration. The defined barcode configuration will automatically be added to the Setup Assistant configuration.

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# CHAPTER 3   Software Configuration SA

**NOTE:    The Setup Assistant 5.2 software is installed with default settings (second source list and Setup Assistant configuration).**

**NOTE:    Before configuring Setup Assistant for the first time it is advised to use the pre installation guide to determine what option must be used, refer to chapter 7.**

## 3.1    General configuration

With the configuration utility, the general configuration settings of Setup Assistant can be set. The configuration utility can be accessed via the tab "**Configuration**" in the Setup Assistant main screen. If this tab is not visible press the keys <CTRL> - <SHIFT> - <C> simultaneously to access the Configuration utility.

**NOTE:    All settings will become active immediately after exiting the configuration screen (except for a change of the barcode printer name)**
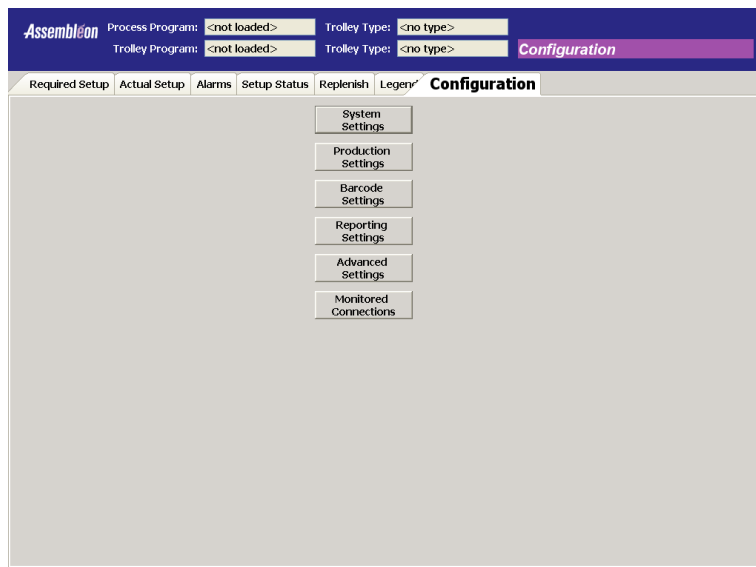


**Configuration utility**

The main configuration screen consists of 6 buttons. Each of these buttons allows you to configure a specific set of Setup Assistant settings:
1. System Settings
2. Production Settings
3. Barcode Settings
4. Reporting Settings
5. Advanced Settings
6. Monitored Connections

These settings are explained in the following paragraphs.

3.1.1    **System settings**

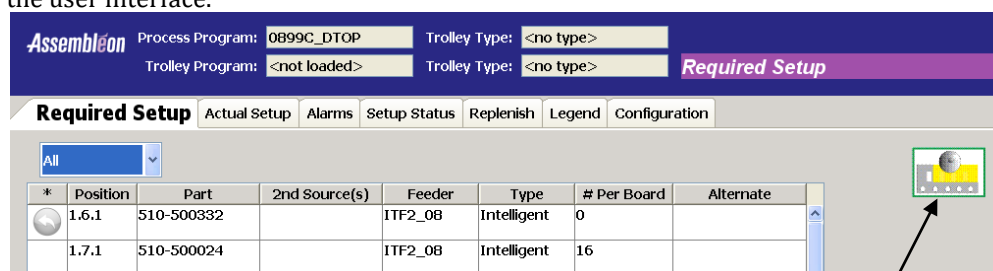| System settings | Possible values | Explanation | Restrictions / remarks |
|---|---|---|---|
| Family setup verification | Strict | All enabled feeders that are in the process program are checked by SA. Including the feeders that are not used in the loaded process program. | This setting can temporarily be overruled with the settings button on the SA GUI.<br><br>Settings |
| | Loose (warnings for wrong family setup) | In the family setup feeders may be present that are not used in the current process program (a part number is defined but this part number but there are no mount lines for it) so the feeder is not needed to run production.<br>SA will check the unused feeders but will only generate warnings and allow the start of the production. With this method the machine does not require a different setup when changing over to a different process program. | |
| | Loose (no warnings for wrong family setup) | Same as previous, only now the unused feeders are not checked by SA. No errors or warnings are given for feeders that are not used in the current process program. | |
| Lite mode | Checked / Unchecked | To execute all important functions of the loading unit (load feeder, unload feeder, print, setup, and pitch setting) on the SA system controller on a placement machine. Check the box to enable the "lite" functionality on a placement machine. | - |
| Random material barcode scanning | Checked / Unchecked | If enabled (checked), all required barcodes, except "operator id", can be read/scanned in random order. | Barcodes must have prefix-identifiers. |
| Automatic pitch programming | Checked / Unchecked | To automatically retrieve the pitch info from the components file while running the machine. When enabled (checked) the pitch setting in the feeder memory is ignored. Refer to §3.4.2 *Automatic pitch programming* | Only on AX machines. Requires consequent pitch settings in all component files. This pitch settings are overruled by the second source file |
| Exclude trays from Material ID uniqueness verification | Checked / Unchecked | If the manufacturer of tray components packs more trays together with one barcode on the packing which is used to scan, then this setting can be used to allow that this same barcode is reused for the trays. | |
| BA splice detection | Checked / Unchecked | To automatically detect splices by using the BA camera which will look for the optical presence of splice tape. | |
| Empty pocket Splice detection | Checked / Unchecked | To automatically detect splices. When enabled (checked) the splice must be done with (by default) 3 empty pockets in the tape reel. These empty pockets will not be used for MIS and other performance data or cause 'failed to pick' problems. Once the splice has been detected traceability data will automatically be updated. | Only on AX machines.<br><br>Splicing with configured amount of empty pockets |
| Splice detection parameters file | <String> | Defines the path and file for the splice detection setting. Refer to §3.3 *Splice detection settings with splicedata.xml* | - |
| Second source file (only on LoadingUnit) | <String> | Describes location and name of the second source file that will be used by the LU. Default location is: C:/ProgramFiles/assembleon/SetupAssistant/config/ secondsource/parts.sec<br>In case the LUs are connected to a network a second | only on Loading Unit |

TAB 5 Configuration & Software

| System settings | Possible values | Explanation | Restrictions / remarks |
|---|---|---|---|
| | | source file on a shared server location for all LUs can be defined. | |
| Forced operatorID scanning | Checked / Unchecked | To force an operator to scan his ID for: loading, splicing, re-splicing and refilling. | - |
| Localization | Selection list | | Default empty |
| Load Only From Central Database | Checked / Unchecked | If this setting is checked, then programs can only be selected from the central database (which is on the PLM server) | Only if PLM is used. |
| Server Name | IP address:portnr. or <pcName>:portnr. | This is the ip address of the PLM server | Only if PLM is used. Default PLM port is 8080 |
| Machine is RFI wired (reboot required) | Checked / Unchecked | When a placement machine's hardware is configured for Remote Feeder Index (RFI), the CAN cable is connected to the machine controller (and not to the SA controller) After changing this setting restart of SA and the placement machine is required. | See diagrams TAB 4, paregraph 6.5. |

Note: After BA splice detection has been enabled this is visible in the right upper corner of the user interface.



BA Splice detection

3.1.2    **Production settings**

| Production settings | Possible values | Explanation | Restrictions / remarks |
|---|---|---|---|
| Low-level trigger (nr. of boards) | <Positive integer> | To define the minimum number of producible boards for a currently used tape. When this level is reached SA will give the 'Lane low' message for the position. | - |
| Low-level trigger (tape length cm) | <Positive integer> | To define the length in millimeters when a currently used tape becomes under a certain length. From that moment SA will give the 'lane low' message. | - |
| Show short-level as | Error / Warning / Off | Specifies how SA will react when the short-level (when the tape or components run out) is reached: As error, production will be interrupted. As warning, production will not be interrupted. Or not checked (off) | - |

| Production settings | Possible values | Explanation | Restrictions / remarks |
|---|---|---|---|
| Short-level trigger | <Positive integer> | To define the shortest length of a tape where splicing is still possible. After reaching this length SA will react according to the "Show short-level as" setting.<br>Advise length: 75 cm. | - |
| Snooze quantity | <Positive integer> | To define the amount of components that is added to the quantity stored in the feeder/trolley memory when the position is snoozed by the operator. | - |
| Snooze trigger | <Positive integer> | To define the amount of components | |
| Splice passed check | <Positive integer> | To define the amount of components that determines when a splice passed check has to take place. | |
| Forced feeder rescan error on feeder insert | Error / Warning / Off | Enable 'Forced rescan' to ensure that reel information in the ITF feeder and the reel on the feeder match.<br>If the option is enabled, the operator must rescan the feeder after: enabling a feeder, inserting a feeder (or trolley with feeder) in the machine or after system power-up.<br>Depending on the value of this option an error or warning is generated. | - |
| Forced feeder rescan on manual pick error | On/off | | |
| Forced feeder rescan on unexpected splice detect | On/off | | |
| Forced feeder rescan behaviour | No unload<br>Unload on failure | Determines if the material must be unloaded if forced feeder rescan is active. | |
| Show forced feeder rescan error as | Error / Warning | Determines if an error or a warning must be generated if a forced feeder rescan error occurs. | |
| Show feeder hardware error as | Error / Warning / Off | Specifies how SA deals with feeders with a hardware error. As an error, warning or no detection. | - |
| Support AQ tray trolley without TCB | On/Off | If no TCB is present in the AQ tray trolleys then the setup information can be stored in the SA controller. | |
| Setup alternate lanes on Loading Unit | Checked / Unchecked | To specify how SA deals with alternate lanes on a LU. Missing or wrong alternate parts will be indicated as errors in the "Alarms" screen when this setting is checked. | LU only |
| Allow unload all feeders on a trolley | Checked / Unchecked | When this setting is checked it is possible to clear all programmed information for all feeders present on a trolley connected to a Loading Unit. | LU only |

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3.1.3    **Barcode Settings**

The Barcode settings configuration is split into three separate screens. They can be selected by making a selection in the "Definition":

- Single Barcode. Definition and test of single barcode regular expressions.
- Composite Barcode. Definition and test of composite barcode regular expressions.
- Verification. Definition and test of the verification step that will be applied to the bar-codes.

The following three tables show the settings for these barcode definitions.

**NOTE:    Either use Composite barcodes (and use the default regular expressions for the single barcodes) or Single barcodes (and use the default regular expressions for the composite barcodes)**

| Single Barcode definition | | | |
|---|---|---|---|
| **Barcode settings** | **Possible values** | **Explanation** | **restrictions** |
| **Definition** | **Single Barcode** | To define and test single barcode regular expressions. For Composite Barcode and Verification see following tables. | - |
| Name | Material ID / Partnumber / Lotcode / Vendor / Quantity / Material expires / Operator ID / | To select for which barcode the regular expression will be defined and tested | - |
| Active | Checked / Unchecked | To indicate if the regular expression for this barcode is used by Setup Assistant (checked → is used). | - |
| Editable with keyboard during load feeder action | Checked / Unchecked | To indicate if this scanned barcode is manually editable in the User Interface of SA (checked →editable). | - |
| Required for rescan | Checked / Unchecked | If checked it is mandatory to scan this barcode when a rescan action is required | - |
| Operator ID scan interval (0=Disabled, value in seconds) | 30 … 999 | To set the time interval (in seconds) after which the Operator ID expires and has to be re-entered. | Only available when in the 'Name' field 'Operator ID' is selected |
| Regular Expression | <String> | To define to which the selected barcode must adhere. Refer to 0 *CHAPTER 6        Verify and regular expressions* | Only editable when 'Active' is enabled |
| Format | <String> | To specify which part of the barcode will be passed on to the next step of the SA process. | Only editable when 'Active' is enabled |
| Length | 1...41 | To define the length of the barcode. The maximum length depends on the barcode. Refer to § *3.4 Second source file settings,* for the different barcode lengths | Only editable when 'Active' is enabled |
| Test Input | <String> | To verify if the regular expression and format definition of the entered barcode string is correct | |
| Test Result | | Shows the result of the defined regular expression and format string applied to the barcode string entered in the field "Test input". | |

| Composite Barcode definition | | | |
|---|---|---|---|
| **Barcode settings** | **Possible values** | **Explanation** | **restrictions** |
| **Definition** | **Composite Barcode** | To define and test Composite barcode regular expressions. For Verification see following table. | - |
| Name | Composite Barcode 1 / Composite Barcode 2 | To select for which barcode the regular expression will be defined and tested | - |
| Active | Checked / Unchecked | To indicate if the regular expression for this barcode is used by Setup Assistant (checked →is used). | - |
| Regular Expression | <String> | Contains the regular expression which filters-out the not needed information and splits the scanned string in the required information. Refer to 0 *CHAPTER 6        Verify and regular expressions* | Only editable when 'Active' is enabled |
| Format | <String> | To specify how the expression is passed through the next step of the SA process. | Only editable when 'Active' is enabled |
| Test Input | <String> | To verify if the regular expression and format definition of the entered barcode string (via keyboard) is correct | - |
| Test Result | | Shows the result of the defined regular expression and format string applied to the barcode string entered in the field "Test input". | - |
| Material ID | | Test result after applying the regular expression and format strings for each single barcode to the split composite barcode. | - |
| Partnumber | | Same as MaterialID | - |
| Lotcode | | Same as MaterialID | - |
| Vendor | | Same as MaterialID | - |
| Quantity | | Same as MaterialID | - |
| Operator ID | | Same as MaterialID | - |

| Verification definition | | | |
|---|---|---|---|
| **Barcode settings** | **Possible values** | **Explanation** | **Restric-tions** |
| **Definition** | **Verification** | To define and test Composite barcode regular expressions. | - |
| Name | Material ID / Partnumber / Lotcode / Vendor / Quantity / Material expires / Operator ID | To select for which barcode the regular expression will be defined and tested | - |

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| Verification definition | | | |
|---|---|---|---|
| **Barcode settings** | **Possible values** | **Explanation** | **Restric- tions** |
| Regular Expression | <String> | Defines which part of the processed barcode should be used for verification. Refer to 0 *CHAPTER 6        Verify and regular expressions* | - |
| Format | <String> | To specify how the expression is passed through to the single barcode processing. | - |
| Additional Compare Set | <String> | To specify additional characters  to be passed on to the next step of the process (default only alpha-numeric characters will be passed on). For example: without  the additional compare set  setting for –:  A-B is equal to AB | - |
| Case sensitive | Checked / Unchecked | When the setting is checked SA will be case sensitive when comparing the selected barcode | - |
| Test Input | <String> | To verify if the regular expression and format definition of the entered barcode string (via keyboard) is correct. An error will be shown if the entered string is invalid according to the specified regular expression. | - |

### 3.1.4      Reporting Settings

| **Reporting settings** | **Possible values** | **Explanation** | **restrictions** |
|---|---|---|---|
| Report Printer Enabled | Checked / Unchecked | To enable the printer | |
| Report Printer | <String> | To define the report printer name in Windows XPe. This is the name as shown in Add/remove printers in Windows XPe. | - |
| Required Setup report template | <String> | To define the path and file name of the style definition of the required setup sheet. | - |
| Actual Setup report template | <String> | To define the path and file name of the style definition of the actual setup sheet. | - |
| Error report template | <String> | To define the path and file name of the style definition of the errors sheet. | Error reports are in English |
| Barcode Printer | <String> | To define the barcode printer name in Windows XPe. This is the name as shown in Add/remove printers in Windows XPe. | - |
| Print barcode label on unload | Checked / Unchecked | When checked, a label is printed every time a tape / bulk / stick / tray is unloaded. | - |
| Barcode Label definition | <String> | To define the path and file name of the used barcode label definition. | - |

**NOTE:    The pathnames in this dialog in version 5.2 are all absolute.**

### 3.1.5      Advanced settings

| **Advanced settings** | **Possible values** | **Explanation** | **restrictions** |
|---|---|---|---|
| Specific setting | | Indicates which advanced setting to configure. Currently only the "Late Low Warning" setting can be selected | - |
| | Late Low Warning | To specify a maximum of 10 partnumbers for which the low | Max 10 |

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| Advanced settings | Possible values | Explanation | restrictions |
|---|---|---|---|
| | | and/or short trigger will be given. (Useful for reels with very high components and a small number of components in a reel, giving a low warning immediately after programming the feeder.)<br>NOTE: All other parts will use the settings as defined in the Production Settings. | partnumbers |
| Low-level trigger (nr. of boards) | <Positive integer> | To define the minimum number of producible boards for the specified partnumber(s). When this level is reached SA will give the 'feeder low' message for the position. | - |
| Low-level trigger (tape length cm) | <Positive integer> | To define the length in millimeters when a currently used tape of the specified partnumber(s) becomes under a certain length. From that moment SA will give the 'feeder low' message for the position. | - |
| Short-level trigger | <Positive integer> | To define the shortest length of a tape where splicing is still possible. After reaching this length SA will react according to the "Show short-level as" setting (in Production settings). Advise length: 75 cm. | - |
| Partnumber | <String> | Identifies a maximum of 10 partnumbers for which the 'Late Low Warning' is applicable. | - |

### 3.1.6 Monitored Connections

| Monitored connections | Possible values | Explanation | restrictions |
|---|---|---|---|
| Feeder Maintenance Monitoring | Error, Warning, Off | Selects if SA has to show an Error, a Warning or nothing, if Feeder Maintenance Monitoring is not connected. | Only applies if the option FMM is present |
| iTAC | Error, Warning, Off | Selects if SA has to show an Error, a Warning or nothing, if iTAC is not connected. | Only applies if iTAC is present |
| Material DB | Error, Warning, Off | Selects if SA has to show an Error, a Warning or nothing, if Material database is not connected. | Only applies if a material database is present |

## 3.2 Feeder definition with FeederSupport.xml

In the FeederSupport.xml file the tape feeders, stick feeders, bulk feeders and tray are defined. These definitions are used by Setup Assistant to determine how to handle the feeder. The FeederSupport.xml file can be modified with XMLmarker. Use this program to change attributes or add feeder definitions. The file is stored on the SA controller in C:\Program Files\Assembleon\SetupAssistant\config\FeederSupport
In the configuration file each feeder or tray is listed in a separate subtag named Feeder.
For the default supported feeders and trays refer to Tab 1 *General*

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<!-- Generic feeders for all machines ITF2 feeders -->
<Feeder name="ITF2" spliceable="true" refillable="false" packaging="TAPE" intelligent="true" multilane="false" />
<Feeder name="ITF" spliceable="true" refillable="false" packaging="TAPE" intelligent="true" multilane="false" />
 <Feeder name="itf2_12" spliceable="true" refillable="false" packaging="TAPE" intelligent="true" multilane="false" />
<Feeder name="itf_12sv" spliceable="true" refillable="false" packaging="TAPE" intelligent="true" multilane="false" />
<Feeder name="itf_12cv" spliceable="true" refillable="false" packaging="TAPE" intelligent="true" multilane="false" />
<!-- Twintape Feeders -->
<Feeder name="TTF" spliceable="true" refillable="false" packaging="TAPE" intelligent="true" multilane="true" />
<Feeder name="ttf_08" spliceable="true" refillable="false" packaging="TAPE" intelligent="true" multilane="true" />
<!-- Bulk Feeders -->
<Feeder name="TBF" spliceable="false" refillable="true" packaging="BULK" intelligent="false" multilane="true" />
<Feeder name="tbf2_r0805" spliceable="false" refillable="true" packaging="BULK" intelligent="false" multilane="true" />
<Feeder name="tbf2_melf0604" spliceable="false" refillable="true" packaging="BULK" intelligent="false" multilane="true" />
<!-- Supported trays. Trays trolley can have multiple trays on a carrier.
    For dumb trays the multiple lane attribute is set to true by SA and overrides the setting defined here -->
<Feeder name="BQ23X23" spliceable="false" refillable="true" packaging="TRAY" intelligent="false" multilane="true" />
<Feeder name="BQ28X28" spliceable="false" refillable="true" packaging="TRAY" intelligent="false" multilane="true" />
<Feeder name="MQ10X10" spliceable="false" refillable="true" packaging="TRAY" intelligent="false" multilane="true" />
<Feeder name="MQ32X32" spliceable="false" refillable="true" packaging="TRAY" intelligent="false" multilane="true" />
<Feeder name="MQ40X40" spliceable="false" refillable="true" packaging="TRAY" intelligent="false" multilane="true" />

## Example of a part of FeederSupport.xml file

| Feeder attributes | Possible values | Explanation | restrictions |
|---|---|---|---|
| name | <String> | The unique name of the feeder or tray that is used in the placement program or action spec. | |
| spliceable | true / false | To define if the used feeding definition can be spliced. Note: In most cases this is only possible with tape feeders. | |
| refillable | true / false | To define if the feeding definition is refillable. Note: In most cases this is only possible with stick feeders, bulk feeders and tray feeders. | |
| packaging | TAPE / TAPE / BULK / TRAY / STICK / WAFER / MASK / GENERAL | To define the packaging of the feeder definition. | |
| intelligent | true / false | To define whether the feeder definition is intelligent feeder or a none intelligent feeder. | |
| multilane | true / false | To define if the used feeding is multilane | |

### 3.3 Splice detection settings with splicedata.xml

It is possible to change certain splice detection parameters. These parameters are by default stored on the Setup Assistant System controller in
*C:\Program Files\Assembleon\SetupAssistant\config\splicedata*

The **splicedata.xml** file can be modified with XMLmarker.

```
<?xml version="1.0" encoding="UTF-8"?>
<SpliceDetectionSettings>
<Generic triggerQuantity="0" emptyPockets="3" threshold="2" spliceTapeLengthInMm="40" enabledForEmptyPockets="YES" enabledForBa="YES">
    <Pitch from="1" to="2" emptyPockets="3" threshold="2" spliceTapeLengthInMm="40"/>
    <Pitch from="4" to="4" emptyPockets="3" threshold="2" spliceTapeLengthInMm="40"/>
    <Pitch from="8" to="8" emptyPockets="3" threshold="2" spliceTapeLengthInMm="40"/>
    <Pitch from="12" to="16" emptyPockets="3" threshold="2" spliceTapeLengthInMm="40"/>
    <Pitch from="20" to="56" emptyPockets="1" threshold="1" spliceTapeLengthInMm="40"/>
  </Generic>
<Specific>
    <PartNumbers enabled="YES">
     <Id>9322122_33668</Id>
     <Id>9322177_19668</Id>
     <Id>9322126_73668</Id>
     <Id>9322183_11668</Id>
    </PartNumbers>
  </Specific>
</SpliceDetectionSettings>
```
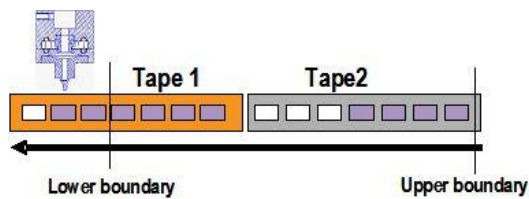
**Example of a Splicedata.xml file**

The following parameters can be set
- Generic
- Per Pitch
- Per Partnumber

| Splice parameters | Possible values | Explanation |
|---|---|---|
| Parameters for sub tags *Generic* and *per pitch* | | |
| *triggerQuantity* | 50 - 10 000 | The expected minimum quantity left on the current reel before Setup Assistant starts checking for the splice (defined empty pockets). This is the amount of components between the Lower boundary and the end of current tape (see figure) For components with a pitch of 4 the value 10000 is recommended. If reels with lower quantities are used or when only on 'feeder low warning' splices are made, the splice trigger quantities can set to lower values e.g. 5000 or even 1000. |
| *spliceWindows Size* | 10 – 20 000 | After the operator has spliced the reel SA will start to look for the splice (defined empty pockets). When the splice is not found within the Splice Window Size, The machine stops and SA will ask if the splice has passed already. In case a 'feeder low warning' initiates/triggers the operator to make a splice the Splice windows size can be set at a low value e.g. 1/10th of the trigger quantity. Is the operator splicing whenever it is possible (operation initiated), the splice window size must be set to a higher value e.g. 1/2th of the Trigger quantities. |
| *emptyPockets* | 1 - 9 | Standard the number of empty pockets for splice detection is 3. SA will show the correct number of empty pockets that must be used for the splice (on screen and on the barcode reader). Note: If a splice is (0) it means either splice detection is totally switched off or the specific feeder is disabled for splice detection. Note: For expensive or large components 1 empty pocket is recommended. |
| *threshold* | 0 - 9 | Threshold is the extra amount of free pockets to still be seen as a splice by SA. The machine will stop when the amount of empty pockets exceeds the sum of "e*mpty pockets*" and "*Threshold*". |

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| Splice parameters | Possible values | Explanation |
|---|---|---|
| | | 2 extra empty pockets are recommended.<br>Note: For expensive or large components no extra empty pockets (0) is recommended. |
| Parameters for sub tag *Specific* | | |
| *enabled* | Yes / No | *To* define if the sub tag *"Specific"* should be used. |
| *PartNumbers* | Yes / No | To use splice detection only for specific part numbers.<br>Note: if this option is enabled each partnumber that should use splice detection must be in the list. |
| *Id* | <String> | To specify the partnumber that is used for the splice detection. |



**Boundaries on a splice**

**NOTE:** **Changes in the splicedata.xml file will take effect immediately after the file has been saved, for new splices.**

### 3.4 Second source file settings

The function of the second source file is to specify alternative partnumber(s) for a primary partnumber to be verified. On the AX machine it can be accessed via the GUI.

- On a Loading unit: *C:\Program Files\Assembleon\SetupAssistant\config\secondsource*
- On an AX-201 System Controller: *C:\aSC\CIM\DATA*
- On an AX-3/5 System Controller: Only via the User interface of the machine system controller (Only applicable when using Lite functionality)

The location of the second source file can be configured in the System settings (see chapter 3).

```
<2nd_src_file>      ::= { <2nd_src_line> }

<2nd_src_line>      ::= ( <2nd_src_spec> | <comment_line> | <empty_line> )

<2nd_src_spec>      ::= <primary_partnr>  "="  <alt_partnr>  [(  ","
                        [<action_spec>]  ","  <pitch>   | ","  <action_spec> )]

<primary_partnr>    ::= <part_number>

<alt_partnr>        ::= <part_number>

<comment_line>      ::= ";"  <comment>
```

| Barcode Lengths | | |
|---|---|---|
| <part_number> | string | part number as present in the process program file max. 20 characters |
| <action_spec> | string | process program filename, DOS 8.3 format |
| <pitch> | integer | alternative pitch setting for second source component, will be used by Setup Assistant instead of pitch setting of primary component |
| <comment> | string | |
| <empty_line> | string | empty line, consists only of <CR><LF> |

**NOTES:**

- **The second source files on the Loading unit and System controller must be identical.**

- **When using one second source file on a central location for all Setup Assistant systems then delete/move the files from the old (Original) location. Also make sure that Access rights (Allowed read) are set correctly.**

- **Changes in the parts.sec file will take effect after the file has been saved and closed and a program is (re)loaded.**

- **The second source file requires a space before and after the "=" and the ",".**

- **Only alpha numeric characters should be used in the second source file. All other characters are filtered from the file when it is being processed.**

- **When there is a fault in the second source file, all lines after the faulty line are not processed. (including the faulty line) No error is generated by Setup Assistant.**

- **If changes like 'automatic pitch programming' are made in the second source file, Setup Assistant must be disabled and enabled.**

- **On the loading unit when using the feeder block for splicing no second source part numbers can be used. This behavior is intentional because the actionspec need not to be present on the Loading Unit to program feeders. For this reason splicing on the Loading Unit is only allowed when the new part equals the part already present on the feeder! This guarantees the part integrity of the feeder.**

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### 3.4.1 **Alternative part definition**

If a partnumber (PRIPART) has an alternative (ALTPART), an entry should be present in the second source file:

      PRIPART = ALTPART

If a partnumber has more than one alternative, an entry should be present in the second source file for each alternative:

      PRIPART = ALTPART1

      PRIPART = ALTPART2

It is possible to specify an alternative pitch for a second source component. The pitch specified in the second source file for a second source component, will overrule the pitch setting in the component file of the primary part.

Maximum number of PRIPART in parts.sec=20000

Max number of ALTPART per feeder lane =10

**Example:** Reels with the same component type (e.g. supplied by different suppliers), have different component pitch (index) settings. An alternative pitch is specified in the second source file. For primary part P1234 (pitch of 2 mm as defined in the component file for part P1234):

| | |
|---|---|
| P1234 = P1234SUPPLIERB, , 4 | Part P1234SUPPLIERB is an alternative part for primary part P1234 (defined in the process program) and requires a feeder pitch of 4 mm. |

**Process program restriction:**

A restriction can be made on the alternative part to use per process program:

If a partnumber has an alternative that is only allowed within a certain process program (ACTSPEC.ASP), an entry should be present in the source file:

      PRIPART = ALTPART , ACTSPEC.ASP

If a partnumber has the same alternatives for different process programs, multiple entries should be present:

      PRIPART = ALTPART , ACTSPEC1.ASP

      PRIPART = ALTPART , ACTSPEC2.ASP

If a partnumber has different alternatives for the different process programs, multiple entries should be present:

      PRIPART = ALTPART1 , ACTSPEC1.ASP

      PRIPART = ALTPART2 , ACTSPEC1.ASP

      PRIPART = ALTPART2 , ACTSPEC2.ASP

      PRIPART = ALTPART3 , ACTSPEC3.ASP

If a second source file contains an alternative part specification with a process program, and an alternative part specification without a process program for the same primary partnumber, the latter is valid for all process programs:

      ; process program specific alternatives:

      PRIPART = ALTPART1 , ACTSPEC1.ASP

      PRIPART = ALTPART2 , ACTSPEC1.ASP

      PRIPART = ALTPART2 , ACTSPEC2.ASP

      PRIPART = ALTPART3 , ACTSPEC3.ASP

If the following is in the second source file:

      PRIPART = ALTPART1 , ACTSPEC1.ASP

      PRIPART = ALTPART1

Then only the second line is used.

      ; all process programs:

PRIPART = ALTPARTX
PRIPART = ALTPARTY

The default example second source file which will be delivered with Setup Assistant (and automatically installed with machine control software supporting Setup Assistant) consists of comment lines only!

```
==========================================================================
                                 =
; This file describes the second source file, do not delete this file !!!
; All COMMENT lines start with ";"
;-------------------------------------------------------------------------
                                 --
; It is used for second source supplier component barcodes
; The layout of the second source file is as follows:
;
; PARTNUMBER_IN_PP = REPLACEMENT_PART [( , PROCESS_PROGRAM  | ,
                          [PROCESS_PROGRAM] , PITCH )]
;
; Some example lines are:
;
;-----------------
; Supplier X
;-----------------
; N116543BFENAAC = SUPPLX_1
; N11296RFBENAAC = SUPPLX_2
; Process program specific alternatives
; N17000ADMGVAAC = SUPPLX_3A , ACTSPEC1.ASP
; Alternative part has different pitch
; N17001FFGJJHJK = SUPPLX_3A , , 8
; Process program specific alternatives with different pitch
; N12455ADMSDFGC = SUPPLX_3A , ACTSPEC2.ASP, 4

;------------------
; Supplier Z
;------------------
; N116543BFENAAC = SUPPLZ_1
; N11296RFBENAAC = SUPPLZ_2
;  Process program specific alternatives
; N17000ADMGVAAC = SUPPLZ_3A , ACTSPEC1.ASP
; Alternative part has different pitch
; N17001FFGJJHJK = SUPPLZ_3A , , 8
; Process program specific alternatives with different pitch
; N12455ADMSDFGC = SUPPLZ_3A , ACTSPEC2.ASP, 4
;
; BE AWARE!:
; 1) The space in front and after the '=' is needed!
; 2) The comma's between the REPLACEMENT_PART , PROCESS_PROGRAM and PITCH
                       are needed
;    even if the PROCESS_PROGRAM FIELD is empty !!
; 3) Every line must be ended with an ENTER!
; 4) Every PARTNUMBER_IN_PP may have a maximum of 10 REPLACEMENT_PARTS!
;
;==========================================================================
                                 ==

;==========================================================================
                                 ==
; Please insert second source items above these comment lines
;==========================================================================
                                 ==
```

**Example second source file**

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### 3.4.2 **Automatic Pitch Programming (A-series machines)**

Setup Assistant supports automatic feeder pitch programming for ITF/TTF feeders on AX machines. SA uses information from the component file (Feeding section, Index attribute) and the AX Process Program (Setup-Section-Trolley-Feeder section, FeederType attribute) to determine the correct pitch (index) setting for the feeder. Therefore it is important that the Index and FeederType attributes are filled in correctly.

When a feeder (or a trolley) is connected to the machine, all pitch information will be retrieved from the component database that is present on the AX controller. The pitch in the feeder memory will be ignored so pitch settings on the Loading Unit are useless.

It is possible that reels with the same component type, supplied by different suppliers, have different component pitch (index) settings. In that case an alternative pitch can be specified in the second source file .

Automatic Pitch Programming requires some attention:

- When using the component file as the reference for the correct pitch make sure that these component files are distributed over all machines (consistency).

- If the pitch of the tapes is different (due to e.g. different suppliers) two component files need to be created. Make sure that the correct packages are used for the process program.

- Ramp up: always check the pitch of the tape against the setting in the component file.

- If there is a lot of change in pitches it is advised to switch off Automatic Pitch Programming and use the Loading Unit or the Lite mode for programming pitches.

**NOTE:** **If the pitch in the component file is changed after loading the process program the process program must be reloaded.**

## 3.5 **Barcode label definition**

To use the remaining tape, bulk or tray it is possible to define and print a label with the remaining quantities. It is possible to define different barcode type for reels and use them at the same time

For the printing of barcode labels, Setup Assistant supports the ZPL or EPL format. These formats are Zebra Printer Language. The Zebra LP2844 Printer is tested.

This section describes the default barcode label definition for Setup Assistant.

The barcode label definition file can be found on the controller of the loading unit or on the Setup Assistant system controller, if the 'Lite' option is enabled. The file can be modified with a normal text editor (Notepad).

At the Loading unit and the machine system controller, the location of the barcode label definition file is:

*C:\Program Files\Assembleon\SetupAssistant\config\Label*

To select what label definition should used is defined in the reporting settings of the configuration file (see §0 *3.1.4   Reporting Settings*)

For detailed barcode label definition information, please check the ZPL-II and EPL programming guide on how to define labels. These documents can be obtained via *http://www.zebra.com*.

3.5.1     **ZPL format**

Partnumber: 
*PPARTNUMBER*

Quantity: 
*Q10000*

Vendor: 
*VVENDOR*

Lot: 
*TLOT*

Date:          22-feb-2005 14:30

Operator:      SVSUSER

```
^XA
^PR2
^LH0,0^FS
^LL609
^MD0
^MNY
^LH0,0^FS
^BY2,2.0^FO183,41^B3N,N,53,Y,N^FR^FD$PART$^FS
^FO40,147^ADN,35,9^CI0^FR^FDQuantity:^FS
^FO40,49^ADN,35,9^CI0^FR^FDPartnumber:^FS
^BY2,2.0^FO183,140^B3N,N,53,Y,N^FR^FD$QUANTITY$^FS
^BY2,2.0^FO183,238^B3N,N,53,Y,N^FR^FD$VENDOR$^FS
^FO40,246^ADN,35,9^CI0^FR^FDVendor:^FS
^FO40,344^ADN,35,9^CI0^FR^FDLot:^FS
^BY2,2.0^FO183,337^B3N,N,53,Y,N^FR^FD$LOT$^FS
^FO40,515^ADN,35,9^CI0^FR^FDOperator:^FS
^FO40,458^ADN,35,9^CI0^FR^FDDate:^FS
^FO179,458^ADN,35,9^CI0^FR^FD$DATETIME$^FS
^FO177,515^ADN,35,9^CI0^FR^FD$OPERATOR$^FS
^FO20,9^GB771,430,4^FS
^FO20,436^GB771,131,4^FS
^PQ1,0,0,N
^XZ
^FX End of job
^XA
^IDR:ID*.*
^XZ
```

**Standard label printed with All.ldf file (ZPL format) and Example of label definition file (All.ldf)**

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| Expression | Explanation |
|---|---|
| ^XA | start of label format. |
| ^PR | Print Rate |
| ^LH | Sets label home position 0 dots to right and 0 dots down from top edge of label |
| ^FD | Field Data |
| ^FS | End of field data |
| ^FD$Field$^FS | Info derived from feeder memory and or Setup Assistant. If the information is not used during the setup process it should not be printed. Parameters that can be used are: |

| | | | |
|---|---|---|---|
| $PART$ | Part number | $LOT$ | Lot code |
| $QUANTITY$ | Quantities | $REEDID$ | Reel id |
| $VENDOR$ | Vendor code | $DATETIME$ | System time of the loading unit or System controller |
| $VENDOR-LOT$ | Combined lot-vendor | $OPERATOR$ | Operator (code) that is used when the unloading the feeder |
| $Field:<nn>$ | Prints the field with a width of <nn> characters and right aligned | | |
| $Field:[0]<nn>$<br><br>$Field[:[-][U][0]<nn>]$ | If a zero is prefixed to the length value, the field is padded with zero's if needed. Left alignment is indicated with a minus sign and upper case with an 'U'. | | |
| ^FD$PART:-U10$^FS | In this example the partnumber is printed (In barcode) all characters in uppercase and the width of 10 characters (right aligned) | | |

| Expression | Explanation |
|---|---|
| ^LL | Sets label length to 609 dots rows along the Y-axis. |
| ^MD | Media Darkness =0 (value between -30 to 30 depending on the current value) |
| ^MN | Media Tracking:<br>Y=Non-Continuous Media Web Sensing<br>N=Continuous Media |
| ^BY | Set Barcode Field Default values to 2 dots for narrow bar width and wide bar to narrow bar width ratio to 2.0 units |
| ^FO | Set field origin relative to label home |
| ^B3o,e,h,f,g ^ | B3 = Code39 Barcode<br>   (→BC=Code128 Barcode)<br>o = Orientation (N=normal)<br>e = Mod-43 Check Digit (default N=No)<br><br>h = Barcode Height (Set to 53)<br>f = Print Interpretation Line (default Y=Yes)<br>g = Print Interpretation Line Above Code<br>   (default N=No) |
| ^FR | Set field to be reverse print as white letters (The effects of an ^FR instruction will not be seen unless it is preceded by another field (i.e. text followed by a ^FR) |
| ^AD | Select bitmap font size |
| ^CI | Change International Font    0=USA1 |
| ^GB | Graphic Box, w=Width of Box(in dots),h=Height of box (in dots), t=Thickness of Line (in dots)<br>Example: 771,430,1 |
| ^PQq,p,r,o | Print Quantity<br>q = TotalQuantityofLabelstoPrint (Default: 1)<br>p = Pause(,Group™) Count<br>   (Default: 0 = no pause)<br><br>r = Replicates of Each Serial Number<br>   (Default:0 =no replicates)<br>o = Override Pause Count (Default: N = No) |
| ^XZ | End Format instruction. This is the ending (closing) bracket. When this instruction is received, a label will be printed |
| $Field$ | Also composite barcodes can be made. For example: P$part$Q$quanity$ |

### 3.5.2 Reformatting when printing new barcode labels

It is possible to reformat barcode label definitions to print out composite barcodes that include padding information like zero's in the quantity field.

The following specification is possible for a barcode fields to be printed:

$Field:<nn>$ Prints the field with a width of <nn> characters and right aligned.

If a zero is prefixed (**0**) to the length value, the field is padded with zero's if needed.

If a minus sign (**-**) is prefixed to the length value, the field is left aligned.

If the character '**U**' is prefixed to the length, the field is printed in upper case.

So: $Field[:[-][U][0]<nn>]$ is possible.

e.g. ^FD$PART:U10$^FS

In this case the partnumber is printed (In barcode) all characters in uppercase with a width of 10 characters (right aligned).

**NOTE:** **When case-sensitive barcodes (e.g. code-128) are used extra attention needs to be taken for the $....$' tags. In case of the usage of capital '$...$' tags then the data will also be printed in capitals on the label: So part "Part05a", using tag '$PART$' will be printed "PART05A", where using '$part$' will be printed "Part05a". For code-39 barcodes uppercase must be used.**

### 3.5.3 EPL format
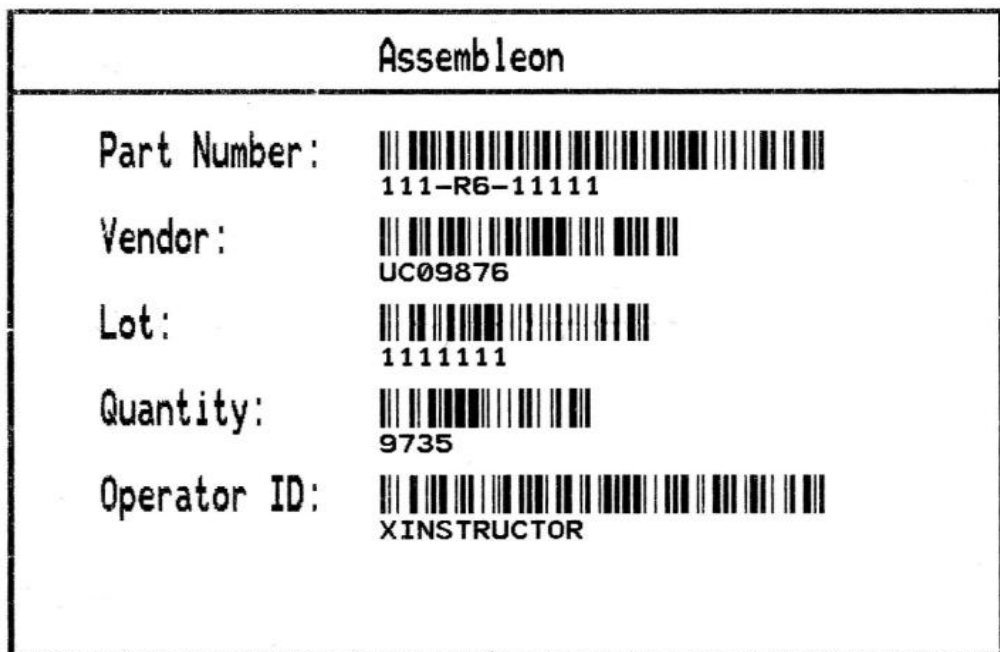


**Standard label printed (EPL format)**

**NOTE:** **All commands and alpha character command parameters are case sensitive**

**Example of EPL label definition file**

```
; Label definition template for an EPL-2 compatible printer
; As an example the ZEBRA LP 2844 is taken
; Printer Settings
N
;N = Clear image buffer
O
;O = Options disabled
```

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```
            D9
            ;D9 = Density (Accepted values 0-15, Default 10)
            S2
            ;S2 = Speed select
            ;Label size 4in. wide by 3in. with 1/8in. gap
            ;Q614,27
            q812
            ;q812 = Set form width in dots
            ;
            ;Framework
            LO30,10,750,5
            ;LO = Line draw black
            ;0 = Horizontal start position(X) in dots
            ;0 = Vertical start position (Y) in dots
            ;600 = Horizontal length in dots
            ;20 = Vertical length in dots
            LO30,82,750,5
            LO30,580,750,5
            LO30,10,5,575
            LO775,10,5,575
            ;
            A310,35,0,3,1,2,N,"Assembleon Setup Assistant"
            ;
            ;A = Print as plain ASCII text
            ;310 = Horizontal start position in dots
            ;25 = Vertical start position in dots
            ;0 = Rotation
            ;3 = Font selection
            ;1 = Horizontal multiplier expands the text horizontally (Values 1-6 & 8)
            ;2 = Vertical multiplier expands the text vertically (Values 1-9)
            ;N = N for Normal R for Reverse
            ;"data "= Represents a fixed data field (Printed text)
            ;
            A100,119,0,3,1,2,N,"Part Number:"
            ;
            ;A = Print as plain ASCII text
            ;150 = Horizontal start position in dots
            ;119 = Vertical start position in dots
            ;0 = Rotation
            ;3 = Font selection
            ;1 = Horizontal multiplier expands the text horizontally (Values 1-6 & 8)
            ;2 = Vertical multiplier expands the text vertically (Values 1-9)
            ;N = N for Normal R for Reverse
            ;"data "= Represents a fixed data fields (Printed text)
            ;
            B310,119,0,1,2,6,34,N,"P$PART$"
            ;
            ;B = Print as barcode
            ;310 = Horizontal start position in dots
            ;119 = Vertical start position in dots
            ;0 = Rotation
            ;1 = Font selection
            ;2 = Horizontal multiplier expands the text horizontally (Values 1-6 & 8)
            ;6 = Vertical multiplier expands the text vertically (Values 1-9)
            ;N = N for Normal R for Reverse
            ;"data "= Represents a fixed data field (Printed text)
            ;   "P$PART$" includes the 'P'in the barcode string.
            :   "$PART$" Does NOT include the 'P' in the barcode string
```

```
;
A310,159,0,3,1,1,N,"$PART$"
;
;A = Printed as plain ASCII text
;310 = Horizontal start position in dots
;159 = Vertical start position in dots
;0 = Rotation
;3 = Font selection
;1 = Horizontal multiplier expands the text horizontally (Values 1-6 & 8)
;1 = Vertical multiplier expands the text vertically (Values 1-9)
;N = N for Normal R for Reverse
;"data "= Represents a fixed data field (Printed text)
;
A100,195,0,3,1,2,N,"Vendor:"
B310,195,0,1,2,6,34,N,"V$VENDOR$"
;  "V$VENDOR$" includes the 'V'in the barcode string.
;  "$VENDOR$" Does NOT include the 'V' in the barcode string
A310,235,0,3,1,1,N,"$VENDOR$"
;
A100,271,0,3,1,2,N,"Lot:"
B310,271,0,1,2,6,34,N,"T$LOT$"
;  "T$LOT$" includes the 'T'in the barcode string.
;  "$LOT$" Does NOT include the 'T' in the barcode string
A310,311,0,3,1,1,N,"$LOT$"
;
A100,347,0,3,1,2,N,"Quantity:"
B310,347,0,1,2,6,34,N,"Q$QUANTITY$"
;  "Q$QUANTITY$" includes the 'Q'in the barcode string.
;  "$QUANTITY$" Does NOT include the 'Q' in the barcode string
A310,387,0,3,1,1,N,"$QUANTITY$"
;
A100,423,0,3,1,2,N,"Operator ID:"
B310,423,0,1,2,6,34,N,"X$OPERATOR$"
;  "X$OPERATOR$" includes the 'X'in the barcode string.
;  "$OPERATOR$" Does NOT include the 'X' in the barcode string
A310,463,0,3,1,1,N,"$OPERATOR$"
;
;Print label
P1
;P1 = Print one label set (range 1 to 65535)
```

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# CHAPTER 4    Barcode scanner configuration

The following barcode scanners are supported:
- DLL6010-R-NM or Dragon M101(old model)
- Dragon M131 (new model)
- Firescan D131 (wired scanner on the Loading Unit)

**NOTE:    If the base station is *not bound* to a barcode scanner, its address assumes a random value which can cause conflicts and malfunctions to other base stations within its range.**

Configure barcode scanner and base station. This step can be performed when the batteries have been charged for about an hour. The programming can also be found in the scanner manual. All steps have to be scanned.
Scan the barcodes in the given order and follow the instructions.

## 4.1    Dragon M101 model

Scanners of the type Datalogic model: Dragon ™ M, have to be switched to a so called compatibility mode 6110 (old model). This can be done by scanning the "Set compatibility DLL6000-R" barcode first.

## 4.2    Dragon M131 model

The barcode scanners of the type Datalogic model: Dragon TM M131 should have the correct date and time set and the base station must be matched with the barcode scanner.

The  M131 model must have special firmware loaded in the barcode scanner and base station. By removing and re-installing the battery from the barcode scanner (see the service tab in the chapter "Barcode scanner battery replacement") the firmware version is displayed. The release should be SS4060 1.0.0. If this is not the case please contact your local Assembléon representative.

**Correct firmware version**

**NOTE:    When the barcode scanner behaves strange or cannot be configured remove the battery that is in the handle or the barcode scanner. When the base station behaves strange or cannot be configured remove the power supply plug and barcode scanner.**

### 4.3    Start configuration (both models)

**Numeric table**



1. Start configuration (Only for M101 go directly to step 2 in case of a M131)

**Set DLL6000-R compatibility**



**Only M101 model**

2. Restore default

**Restore DLL6000-R default**



**M101 model**

Restore Dragon™ M131 Defaul



**M131 model**

3. Enter configuration

**Enter configuration**



4. Set date (Optional, not used by SA). Scan six digits for Day, Month and Year (DDMMYY). Use the numeric table.

**Set Date**



5. Set time (Optional, not used by SA) Scan four digits for Hours and Minutes (HHMM). Use the numeric table.

**Set Time**



6. Set radio address.

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M101: Scan three digits for the radio address (value between 000 to **126**).
Use the numeric table

**Set Gun Address**



**M101 model**



M131: Scan four digits for the radio address (value between 0000 to **0126**).
Use the numeric table

**Set Radio Address**



**M131 model**

NOTE: **All scanners used in the same area must have different addresses. Place an address sticker on the barcode scanner and/or base station when using multiple barcode scanners in the same area.**

7.  Exit and save configuration

**Exit and Save configuration**



8.  Bind. The scanner is now dedicated to the base station.
    Any previously bound barcode scanner is excluded.
    The green LED on the scanner will go on: the scanner
    is ready to be inserted into the base station.

**Bind**



9.  Insert firmly the barcode scanner into the base station: a beep will be emitted, signaling that the base station has been paired to the barcode scanner



**Insert scanner in base sation**

10. RS232 interface
    - M101 first scan *Restore cradle default* then continue with *RS232*, *enter config* and *exit*
    - M131 start with *RS232*, enter *config* and *exit*

**Restore Cradle default**

<u>**Only M101**</u>
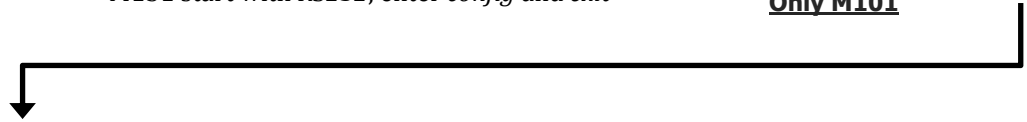
**RS232 Interface** → **Enter configuration** → **Exit and Save configuration**

11. Test
    **Test O.K.:** two short beeps.
    **Test Failure:** no beep or a long high-tone beep followed by a long low-tone beep

**Test**

123456

12. RS232 configuration

**Enter configuration** → timeout control in reception from Host → 0

0 → **Exit and Save configuration**

13. Base station operating parameters

**Enter configuration** → one character header → 0 → 2 → one character terminator

3 ← 0 ← one character terminator

**Exit and Save configuration** ← 3

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14. Scanner operating parameters (different for M101 and M131!)



**M101**

**M131**
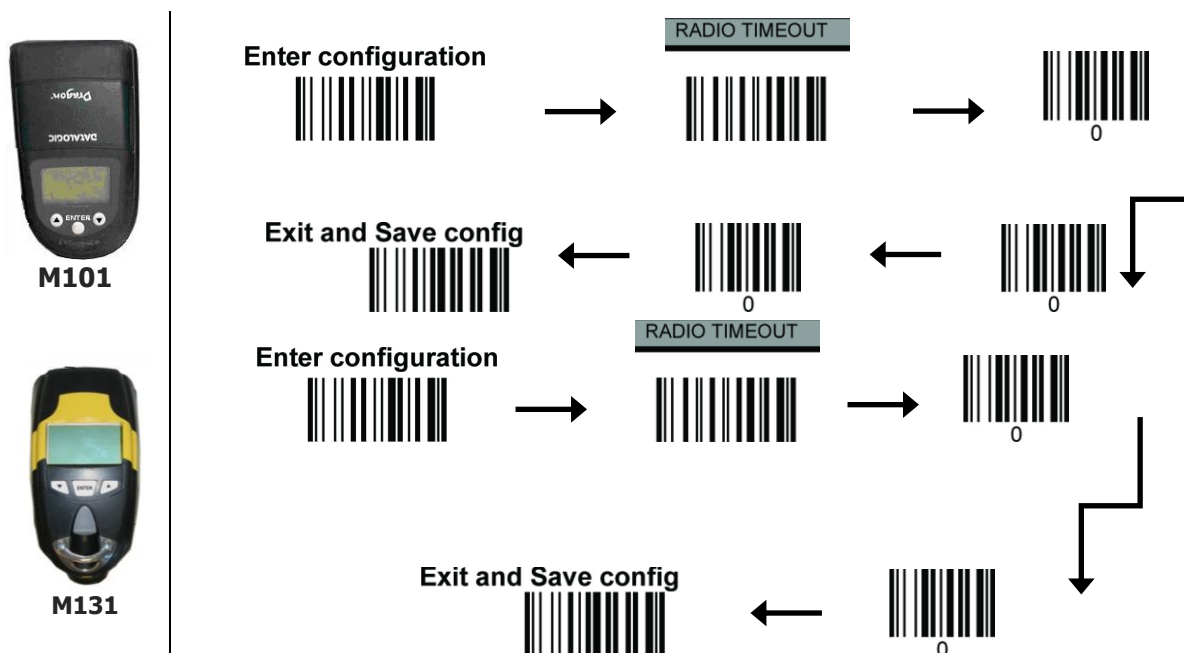
15. Scanner display parameters

**NOTE:** **Mark the scanner and the machine that belong together with a sticker with the radio adress, to prevent mix-ups between different machines.**
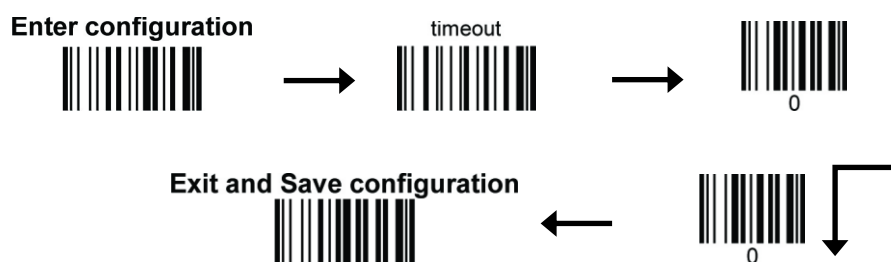


16. Barcode scanner display mode
    - Select 'Normal' for scanner on machine.
    - Select 'Local echo' for scanner on Loading Unit.

Dragon M131 barcode scanner provides an aiming system. If enabled a partial trigger produces a red spot, which should be aimed over the code center to get the best reading performance. (or to scan the correct code when in close proximity to another barcode). By completely pressing the trigger the scan line appears to start the code scanning.

- Select 'Enable' to use the Aiming System for the barcode scanner
- Select 'Disable' to stop using the Aiming System

**Firescan wired barcode scanner**

**Enter configuration**

◆ disabled

or

enabled

**Exit and Save configuration**
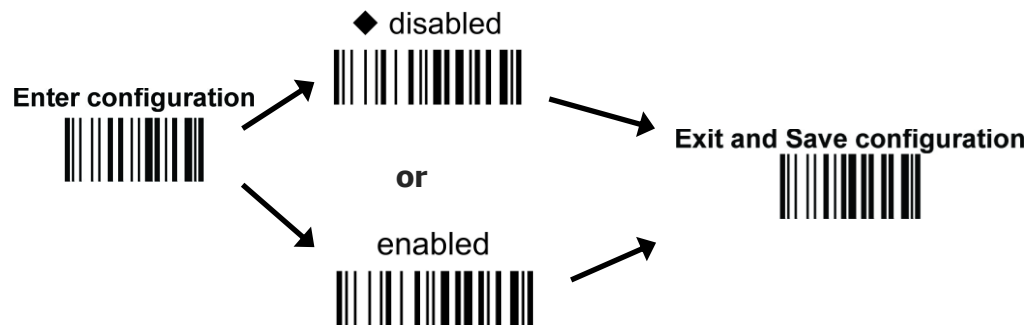
### 4.4 Barcode scanner configuration Firescan

The Loading Unit uses the wired barcode scanner: Datalogic FirescanTM.
The barcode scanner is configured for the Assembléon SA purpose. If the scanner is not working properly, reprogram the scanner.

1. Restore default

**RESTORE DEFAULT**

2. Enter configuration

**Enter configuration**

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3. Enter serial connection

**RS232 Interface**

4. One character header

one character header

0

2

5. Terminator 03

one character terminator

0

3

6. Save and exit

**Exit and Save configuration**

## 4.5 Check Barcode scanner communication

If it is unclear if the barcode scanner send data to the system it is possible the close the SA software and startup HyperTerminal.
**Special tools:**
- VGA monitor
- Mouse
- keyboard.

1. Power down the SA system controller

2. Connect the VGA monitor, mouse and keyboard to the SA controller.

3. Start the SA controller and keep pressing down the "Shift"-key when Windows is starting.

4. Login as Administrator (Default password is Administrator).

5. Close the SA application if it is started.

6. Start HyperTerminal (Windows Start: -> Programs -> Accessories -> Hy-per-Terminal)

7. Cancel the "Connection Description"-window

8. Set the following communication settings (Menu: File -> Properties)

- If the scanner is connected to a SA system controller or loading unit, the scanner is connected to COM3.

- Make sure the correct communication settings are made ("Configure"-button). Use the "Default"-button for the correct parameters.

| Default communication settings barcode scanner | |
|---|---|
| **Parameter** | **Value** |
| Bits per second | 9600 |
| Data bits | 8 |
| Parity | None |
| Stop Bits | 1 |
| Flow control | None |

9. Start the Connection (Menu: Call -> Connect) and use a 'dummy' name to start the 'HyperTerminal' session.

10. Now HyperTerminal gives an empty screen. When scanning an barcode e.g. feeder position information is shown

**NOTE:** **Ignore all strange or special characters like smileys, hearts etc. at the begin or end of the line, these are used as start and stop information for the Setup Assistant software and are not scanned from the barcode**
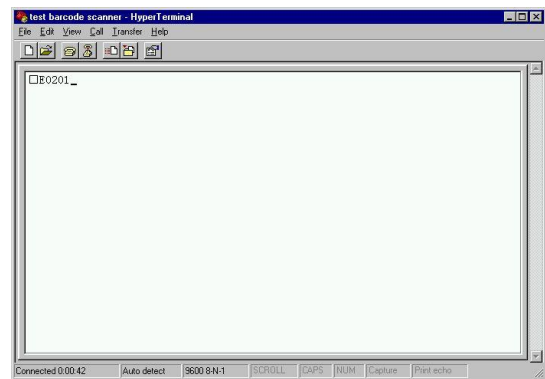


**Example of scanned barcode in hyperterminal**

TAB 5 Configuration & Software

*Assembleon*

# CHAPTER 5 Network connections

For certain applications (e.g. iTAC, PLM) it might be necessary to connect the Setup Assistant to an external network. The Advantech system controllers that are used for Setup Assistant have 2 network connections. When Windows XPe is installed these 2 network connections are both enabled and can be used. Refer to the following figures.
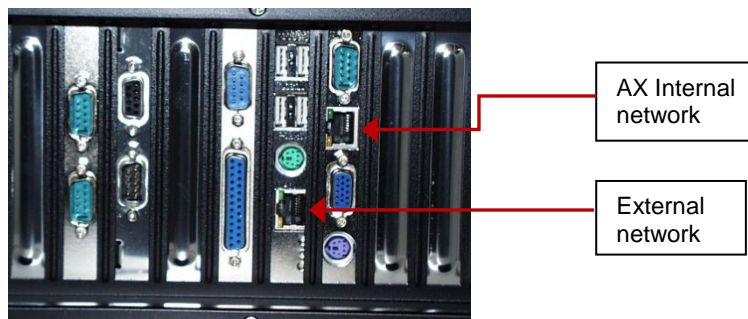


**UTP (LAN) connection for Loading Unit, MG, AX-3/5 SA system controller**
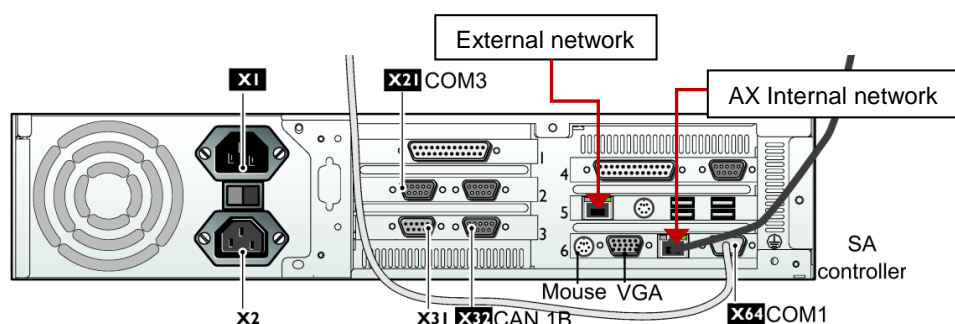


**UTP (LAN) connection for AX-201 or MG SA system controller**

## 5.1     Connecting the SA system controller to an external network

It's advised to use the "External Network" -UTP connection for this connection. The AX Internal Network UTP should only be used for "Machine internal" usage.

| Advised Network Connection for Setup Assistant | | | |
|---|---|---|---|
| Windows XPe name | Loading Unit | AX-201 | AX-3/5 |
| AX Internal Network | Free | Used internal Network for remote access (from PC), splice detection, communication between the ASC and APC | Used for internal network of the AX-3/5 |
| External Network | Available for external network | Available for external network | Available for external network |

**NOTE:    When connection the Setup Assistant consult the ICT department that manages the networks**

### 5.2    Configure Network Support

To connect the Loading Unit to an external network:
1. Restart the Setup Assistant controller

2. Wait until the Windows XPe is normally started.

3. Select <Start> → <Settings> → <Configuration> → <System>.

    a. Select the tab "Computer Name"

    b. Click on the "Change"-button and fill in the computer name and domain name that is given by the ICT department.
    Notice that the user name must exist for the Setup Assistant system controller in the domain.
    After the system name setting are done Windows XPe may request a domain name user account password.
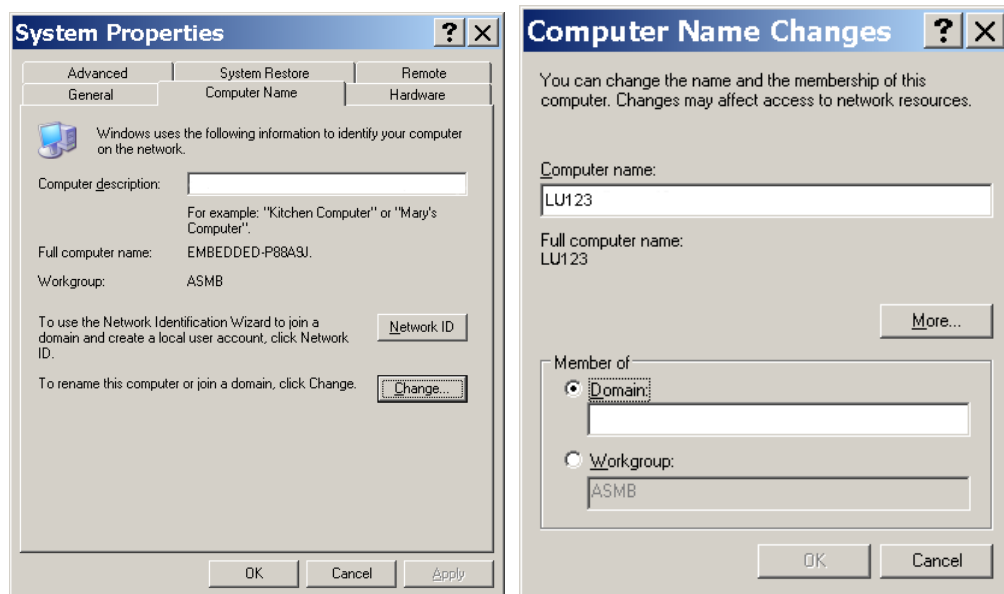


**System Properties and Computer Name**

4. Select <Start> → <Settings> → <Network Connections>

5. Double click on "External Network" and select: "Internet Protocol (TCP/IP)"

6. Make sure the correct IP settings are selected. In case the ICT department has fixed IP numbers select the IP address. In case the IP address is delivered from a remote system select the option Automatic.

7. After all network connections are set correct close all open windows with the "OK"-button.
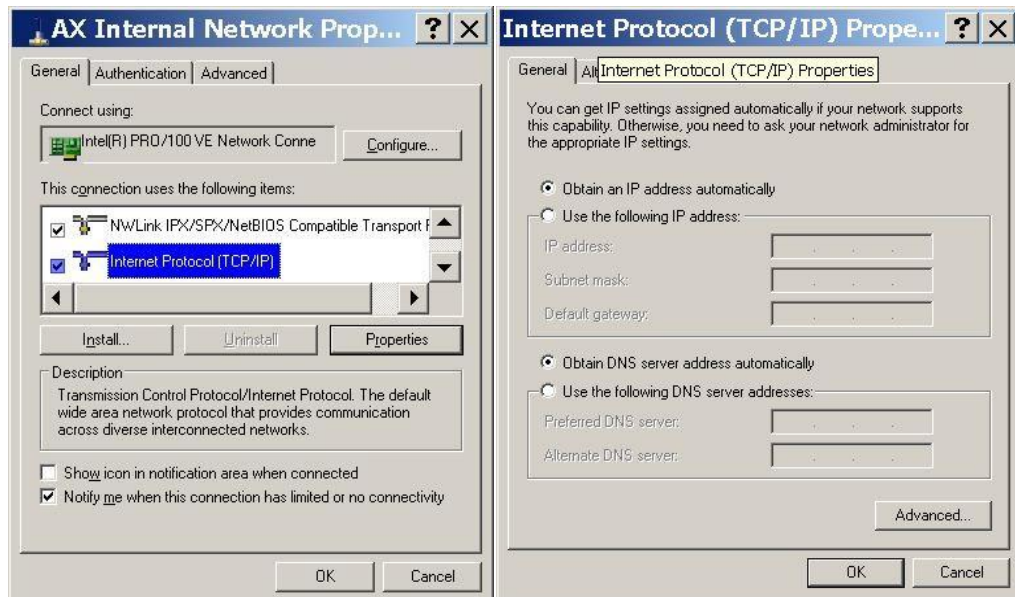
TAB 5 Configuration & Software



**Local Area Connection/Internet Protocol Properties**

TAB 5 Configuration & Software

## CHAPTER 6 Verify and regular expressions

To build verify expressions and format strings use the examples in this chapter or from the configuration utility.
To check if the expressions and strings yield the wanted results, there is a testing tool. This tool is integrated in the configuration utility which is described in detail in 0 3.1    General configuration.

### 6.1      Meta characters

Regular expressions are build with meta-characters.

| Meta-character | Description | Example |
|---|---|---|
| . | Matches any single character. | *r.t* matches *rat*, *rut*, and *r t* but not *root* |
| $ | Matches the end of a line. | *weasel$* matches *weasel* in *He is a weasel* but not in *They are both weasels* |
| ^ | Matches the beginning of a line. | *^When* matches *When* in *When the saints...* but not in *What and When in the .....* |
| * | Matches zero or more occurrences of the immediately preceding character. The regular expression.* matches any string of characters | *bo\** matches *b*, *bo*, and *boooo* but not *bot*.. |
| + | Matches one or more occurrences of the immediately preceding character. | *bo+* matches *bo*, *boo*, and *boooo* but not *bot* and *b*. |
| ? | Matches zero or one occurrences of the immediately preceding character. | *bo?* matches *b* and *bo* but not *bot* and *boo*. |
| {i} | Matches i occurrences of the immediately preceding character. | *bo{3}* matches only *booo*. |
| {i,j} | Matches between i and j occurrences of the immediately preceding character. | *bo{2,4}* matches *booo*, *boooo*, and *booooo* but not *bo* and *b*. *bo{3,}* matches *boooo*, *booooo*, *boooooo* etc. |
| \ | Any character following a back slash is treated as an ordinary character. | *\$* matches *$* and not any single character |
| [ ] | Matches any one single character of the characters between the brackets. | *r[aou]t* matches *rat*, *rot*, or *rut* but not *ret*. |
| [C1-C2] | Matches any single character out of the range between brackets. | *[04-9]* matches *0* and *5* but not *3*. |
| [^C1-C2] | Matches any single character not in the indicated range. | *[^269A-Z]* matches *5* and *b*, but not *6* and *B*. |
| \| | Combines to two conditions with an 'or'. | *ab(c\|d)* matches *abc* and *abd* but not *abcd*. |
| ( ) | Treat the expression between brackets as a group and save the characters that match the expression between the brackets in a temporary file. Up to nine pattern matches can be saved in a single regular expression. They can be referred to as \1 through 9\. The *format string* can transfer the contents of the temporary file to the following application. | |

More details can be found on the internet:
http://java.sun.com/javase/6/docs/api/java/util/regex/Pattern.html
Online Tester: http://www.fileformat.info/tool/regex.htm

TAB 5 Configuration & Software

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### 6.2 Examples of regular expressions

| Examples of regular expressions with meta-characters | |
|---|---|
| **Expression** | **Explanation** |
| P([A-Za-z_0-9]{4}[A-Za-z_0-9]{0,9})<br>Or<br>P([A-Za-z_0-9]{4,13}) | Matches a part number that consists of at least four characters and thirteen characters at most. The characters must in the range of A .. Z, a .. z, 0 .. 9 and _. |
| Q([1-9]{1}[0-9]{0,4}) | Matches a quantity in the range Q1 .. Q99999. |
| Q(([1-9][0-9]{0,1}\.[0-9]{3})\|([1-9]{1}[0-9]{0,4})) | Matches a quantity in the range Q1 .. Q99.999. A decimal point as a thousands separator is allowed. |

### 6.3 Character classes

Character classes can be defined in the following format: [:classname:]. The most useful classes for use with Setup Assistant can be found in the following table.

| Class name | declaration | Explanation |
|---|---|---|
| word | \w | Any word character: This means all alphanumerical characters and the underscore. |
| space | \s | Any white space character. |
| digit | \d | Any digit: 0 - 9. |
| lower | \l | Any lower case character: a - z. |
| upper | \u | Any upper case character: A - Z. |

### 6.4 Setup Assistant format strings

With the elements from §0, §0 and §0 verify expressions for Setup Assistant can be made. Together with a format string these can be used to compare the data from the scanned code, to the format of the code in the placement program.

The format string tells the program which parts of the data must be transferred to the next stage of the program. This is easiest explained with some examples:

| Scanned data | Verify expression | Format string | Used for comparison |
|---|---|---|---|
| Q1024 | Q(\d{1,4}) | $1 | 1024 |
| | Explanation: Check if: at least one and not more than four digits are behind the Q. If this is the case, the data designated in between the brackets ( ) is transferred to the format string. This gives a result of 1024. | | |
| Q1024 | Q(\d{1,2})(\d{0,2}) | $2 | 24 |
| | Explanation: Check if: at least one and not more than four digits are behind the Q. If this is the case, the data designated in between the brackets is transferred to the format strings. The second string ($2) contains 24. | | |
| P4022-598-2345.1 | P(\d{4})-(\d{3})-(\d{4})\.(\d) | $1$2$3$4 | 402259823451 |
| | Explanation: Check if: a combination of four, three, four, and one digits; separated by dashes and a full stop. The 4 different data strings are combined into one number. This is the way to compare a code number with a single figure without separators. | | |
| P4022-598-2345.1 | P(\d{4})-(\d{3})-(\d{4})\.(\d) | $1_$2_$3$4 | 4022_598_23451 |
| | Explanation: Same as above only the format string is changed. | | |
| Q34.567 | Q((([1-9][0-9]{0,1})\.([0-9]{3}))\|([1-9]{1}[0-9]{0,4})) | $3$4$5 | 34567 |
| | Explanation: Check if: the quantity is in the range of Q1... Q99.999 with or without a decimal point as a thousands separator. The decimal point is than removed in the result. | | |
| FSP2017701009002A BV8Vp64 | (.{3})([-\d]*)(.*) | V$1,P$2,T$3 | VFSP,P2017701009002,TABV8Vp4 |
| | Explanation: Split the first 3 characters as Vendor code, then split all digits that follow into the partnumber and split the remaining of the string into the Lotcode. | | |

TAB 5 Configuration & Software

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## CHAPTER 7 Pre installation

Before working with Setup Assistant some pre-installation definitions and decisions must be made. These decisions will allow a smoother ramp up of the Setup Assistant and its features. There are 3 possible pre installations scenario's:

1.  New/initial installation: decide what features must be used that best fit the production rules on the shopfloor.

    a.  Find out by filling in the tables on this and the following page.
    b.  Follow scenario for a new installation
    c.  Install the SA software
    d.  Configure SA

2.  Upgrade from SVS Pro: Setup Assistant must adapt the rules that were once used and set by SVS Pro.

    a.  Find out by filling in the in the tables on this and the following page.
    b.  Use the conversion tool (see Chapter 2)

It is however wise to take note of customized settings for future reference. For a detailed upgrade plan, including a description of how to use the migration tool, see TAB 7 Upgrade.

3.  Setup Assistant customizing: A current configuration of SA used in production needs to be changed (Customized).

    a.  Before starting to change the configuration find out what Assembléon hardware is used and what customized features are needed to be changed. Fill in the in the tables on this and the following page.
    b.  Once it is clear what settings are required.

Taking notice of what scenario is needed and by filling in the next three tables it should be clear on what configuration actions need to be taken.

| General and customized function for SA | | | |
|---|---|---|---|
| **Equipment** | **SA Initial installation** | **SVS Pro Upgrade** | **SA Customizing** |
| Machine AX-201 | | | |
| Machine AX-3/5 | | | |
| Machine MG | | | |
| Loading Unit | | | |
| Barcode Printing | | | |
| Combined/ Family setup | | | |
| Traceability used | | | |
| Error Reporting used | | | |

Take notice of what processes need extra attention

| Process | Basic | Customized |
|---|---|---|
| Splicing | | |
| Reel Low Warning | | |
| Second Source used | | |

## 7.1 Configuration requirements (initial installation)

Before starting to use Setup Assistant it must be clear what features/settings must be set so Setup Assistant best fit to the production rules. To get the possible requirements information needs to be collected. It is advised to use the following table to get the information clear.

| Subject | Summarized requirements for Setup Assistant 5.2 | | Required | Reference information |
|---|---|---|---|---|
| **Barcodes used** | | | | |
| Material ID/Reel ID | Length | Prefix | YES/ NO / N.A | |
| Part Number | Length: | Prefix: | Mandatory | |
| Use Quantities | Length: | Prefix: | YES/ NO / N.A. | |
| Use Vendor Code | Length: | Prefix: | YES/ NO / N.A | |
| Use Lot Code | Length: | Prefix: | YES/ NO / N.A | |
| Composite Barcodes Used | Length: | Prefix: | YES/ NO / N.A | |
| Prefix used for barcodes | | | YES/ NO / N.A | |
| **General Process** | | | | |
| Operator ID tracking | Length: | Time interval (Sec): | YES/ NO / N.A | |
| Combines/Family Setup | | | YES/ NO / N.A | |
| Rescan all feeders at insert trolley (forced feeder rescan) | | | YES/ NO / N.A | |
| Scan operator ID for feeder programming | | | YES/ NO / N.A | |
| Program feeders at machine | | | YES/ NO / N.A | |
| **Splice process** | | | | |
| Use Splice detection | | | YES/ NO / N.A | |
| Common Splice detection file | Location | | YES/ NO / N.A | Splice detection settings with splicedata.xml |
| Feeder low/Snooze size | Length….(M) PCB's…. | | YES/ NO / N.A | |
| **Additional options** | | | | |
| Pitch Programming | | | YES/ NO / N.A | |
| **Loading Unit** | | | | 1.1 Setup Alternates (Specific Loading Unit |
| Force "alternates" on the trolley | | | YES/ NO / N.A | |

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### 7.1.1 **Barcodes to be used**

Find out or collect what barcodes are used for the components and determine the definition of the barcodes. Important definitions of the barcode are: the length of the barcode and digits, characters, special strings.

The barcode (Part number) read and compared in Setup Assistant must be the same as the part number used in the placement program (or in the Second Source file).

The next two tables (barcode definition and barcode numbers) can be used to help and find out what conversion must be done in SA.

1. First find out what barcodes (preferable all) are used on the labels of the tape and fill the used barcode strings in the first table.

2. Decide whether

   - a composite barcode conversion is needed (with default regular expressions for the single barcodes)

   or

   - a single barcode conversion is needed (with default regular expressions for the composite barcodes)

3. Then find out what is required/used on the placement program and fill in the second table. The process of steps is presented in a graphical scheme.

**Simple barcode conversion**

Table 7
Barcode definition on reel/tape

↓

Conversion via "Verify & Regular expressions"

↓

Table 8
Information used in placement program & SVS Pro

**Composite barcode conversion**

Table 9
Composite Barcode definition on reel/tape

↓

Split Compiste barcode in simple (barcodes) strings

↓

Table 7
Barcode definition on reel/tape

↓

Conversion via "Verify & Regular expressions"

↓

Table 8
Information used in placement program & SVS Pro

**Barcode conversion**

| Barcode definition on reel / tape (first part is an example) | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcode label | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| Partnr. 1 | P | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D |
| Partnr. 2 | 1 | P | C | C | C | | | | | | | | | | | | | | | |
| Partnr. 3 | | | | | | | | | | | | | | | | | | | | |
| Partnr. 4 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Quantities 1 | | | | | | | | | | | | | | | | | | | | |
| Quantities 2 | | | | | | | | | | | | | | | | | | | | |
| Quantities 3 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Vendor 1 | | | | | | | | | | | | | | | | | | | | |
| Vendor 2 | | | | | | | | | | | | | | | | | | | | |
| Vendor 3 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Lot code 1 | | | | | | | | | | | | | | | | | | | | |
| Lot code 2 | | | | | | | | | | | | | | | | | | | | |
| Lot code 3 | | | | | | | | | | | | | | | | | | | | |

| Legend | |
|---|---|
| D | digit: 0, 1, 2, 3, 4, 5, 6, 7, 8 or 9 |

TAB 5 Configuration & Software

| C | Character, A till Z, 0 till 9 |
|---|---|
| A | A till Z, 0 till 9 and all special charters allowed in 3 to 9 barcode set like,._- |
|   | If a fixed character is used change the cell underlined |
|   | If characters can be skipped make the cell grey |

| Barcode numbers to be used in Setup Assistant (SA) and process program (PP) | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PP/SA | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| Partnr. 1 | | | | | | | | | | | | | | | | | | | | |
| Partnr. 2 | | | | | | | | | | | | | | | | | | | | |
| Partnr. 3 | | | | | | | | | | | | | | | | | | | | |
| Partnr. 4 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Quantities 1 | | | | | | | | | | | | | | | | | | | | |
| Quantities 2 | | | | | | | | | | | | | | | | | | | | |
| Quantities 3 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Vendor 1 | | | | | | | | | | | | | | | | | | | | |
| Vendor 2 | | | | | | | | | | | | | | | | | | | | |
| Vendor 3 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Lot code 1 | | | | | | | | | | | | | | | | | | | | |
| Lot code 2 | | | | | | | | | | | | | | | | | | | | |
| Lot code 3 | | | | | | | | | | | | | | | | | | | | |

With the tables filled in the correct regular configuration expression and format strings can be used and filled in the Setup Assistant configuration file. Barcodes can be tested, see 3.1.3 *Verification definition, Test input*. After this continue to define the pre-installation.

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**Assembleon**

### 7.1.2 **Composite barcodes**

Composite barcodes can contain more information like part number and quantities, vendor and lot code in a single barcode. To use the information stored in a composite barcode 2 steps are taken:

1. Separate the information in sections that each contains parts of the different component information needed for Setup Assistant. Split the barcode in a part number section, quantities section (If needed), Vendor code section (if needed) and lot code section (if needed).
2. Filter all unnecessary information so that the correct data is interpreted for Setup Assistant. This step is the same step as if single barcodes are used.

Analyze the composite barcode string to find out what and where the information is located in the composite barcode string. Then fill in the Composite barcode table.

| Composite barcode definition on reel/tape | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barcode label | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| Composite 1 | P | P | P | P | P | P | P | P | P |  | Q | Q | Q | Q |  | V | V | V | V | V | V | V |  | T | T | T | T | T | T |
| Composite 2 | V | V | V |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Composite 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

| Legend | |
|---|---|
| P | Part number character |
| Q | Quantities |
| V | Vendor code character |
| L | Lot code character |
|  | Empty is any other character (wildcard) or the separator character |

# CHAPTER 8   Overview of barcodes

Barcodes SA

Enter                              *Y001*

Next item                          *Y002*

Previous item                      *Y003*

Operator initiated rescan          *Y010*

Disable Setup Assistant            *Y020*

Enable Setup Assistant             *Y021*

Stutdown Setup Assistant           *Y025*

Show SW version                    *Y100*

Report Actual                      *Y251*

Report Required                    *Y252*

Report Errors                      *Y253*

Splice detected                    *Y030*

**Note: Users who upgraded from SVS-Pro should discard the command barcodes and use the new SA barcodes instead since some of these barcodes have changed. (Strict/Loose barcodes)**

# Assembleon

# Option Manual Setup Assistant Tab 6 SA installation

## Table of Contents

## CHAPTER 1   Installation of the software

**NOTE:**   **Setup Assistant software is protected by copyrights.**

**NOTE:**   **Please read the Release Notes Setup Assistant 5.20 before installing or upgrading the software.**

**NOTE:**   **If a Setup Assistant controller has been used on a different machine or LU (or from a LU on a machine), the software must be reinstalled.**

### 1.1    Hardware

Setup Assistant software will only work on the Advantech system controllers. The supported machines and the required software version for machine software for Setup Assistant 5.20 are:
1.   AX-3/5 Machine control SW release 3.00 or higher
2.   AX-201 Machine control SW release 1.0 or higher
3.   MG-1 or MG-8 Machine Software

### 1.2    Pre installation requirements

Before installing the software several items are checked and if necessary corrected:
1.   During installation of the Setup Assistant software on a placement machine, temporary a VGA monitor, mouse and a keyboard must be to the Setup Assistant Controller. These items must be obtained locally.
2.   Make sure that all  Setup Assistant hardware are correctly installed in the machine and trolleys are correctly installed.
3.   Setup Assistant only runs on Advantech controllers. (When upgrading SVS-Pro systems with a Radisys controller, it must be replaced by means of an upgrade article.)
4.   Windows XPe license must be present on the machine and the loading unit see Chapter 5.
5.   In situations where SVS-Pro has to be replaced by Setup Assistant back-up the following information: SVSPro.cfg, Parts.sec Splice.xml. Furthermore make notes of network settings, printer settings and other possible configuration items.

### 1.3    Operating system, Windows XPe

The operating system is Windows XPe (XP embedded). Before installing the Windows XPe on the Setup Assistant system controller a Windows XPe license must be placed on the machine or loading unit.
The Setup assistant controller will have one single NTFS partition which is used to store the MS Windows operating system as well as the Setup assistant application. The partition will be created during the installation of the Windows XP Embedded operating system image. On top of this the application software will be installed.

**NOTE:**   **All data/information on the hard disk will be deleted during installation of the Windows XPe.**

1.   Boot the Setup Assistant controller with the Setup Assistant XPE ASMB CD inserted in the CD-ROM drive.

2.   Follow the instructions on the screen. After confirming that you are qualified to do the installation the installation script will ask one more time if you want to stop.

3.   A clean installation of the XPe is required. After confirming this  the new Windows XPe OS will be installed.

TAB 6 Installation

In case the installation failed check the hardware and the BIOS settings (Tab 4 Service). Check also if the correct software Windows XPe is used.

4. After installation remove the CDROM and reboot the system controller.

5. When the Windows XPe login screen is shown optional printers, barcode printers, network configurations and the Setup Assistant application 5.20 software can be installed and configured.
Log in as user "Administrator" with password "Administrator".

6. The "Date and Time Properties" windows presented. Set the correct date, Time and time zone.

**NOTE:** **Make sure that the date, time and time zone settings on the Setup controller and Machine system controller are identical.**

This is a shortcoming of the operating system: In locations without Daylight Savings time, it is important to first uncheck "Automatically adjust clock for daylight saving changes" and then changeover to the specific time zone. If this is not done then the hidden DST value would be used by the operating system. After changing the time zone the system must be rebooted.
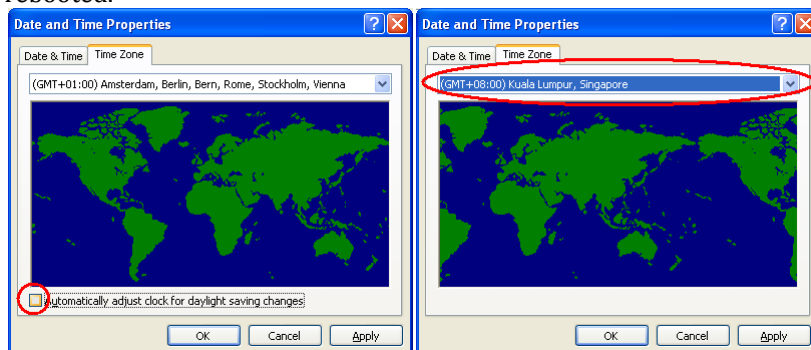


First uncheck                                  Then change the time zone

### 1.3.1 **Completion of the installation when a MOXA card is present**

Important! If a (re-)installation of the operating system takes place, then check if there is an update of SI-OSW-509 which may supersede the information in this paragraph. This information is based on the first release of this SI from Feb. 15, 2010, currently the driver of the new serial card is not integrated in the operating system.

Installation steps to install the driver for the MOXA card:

1. Install the XP-Embedded image as usual.
2. On first boot the PC, Windows will automatically detect the CP-102U/UL board.
3. Insert the CP-102U/UL software CD in your CD-ROM drive.
4. Select **Install from a list or specific location (Advanced)**
5. After selecting **Search for the best driver in these locations**, check the **Include this location in the search** checkbox, and then use the browse button to navigate to the CD's
**CP-102U_UL\Software\Windows XP_2003\x86** folder.
6. Click <Next>
7. Click on **Continue Anyway** in response to any warnings that the software hasn't passed Windows Logo testing.
8. Click <Finish>

Next steps are **only needed** if this is an installation on a **controller shown in figure 1 (**4022-594-1238**4)**:

1. Click  **START** and go to **Settings, Control Panel, Administrative Tools** and click on **Computer Management.**
2. Click in the left pane on **Device Manager.**
3. **Click** on the **+** sign on **Multi-port Serial Adapters.**

4. **Double click** on **MOXA CP-102U Series (PCI Bus).**
5. The configuration window will open. Click the **Ports Configuration** tab.
6. **Double click** on **COM 3.** In the Port 1 configuration window **select COM 4** in the Port Number drop-down menu. Press OK.
7. **Double click** on **COM 5**. In the Port 2 configuration window **select COM 3** in the Port Number drop-down menu. Press OK.
8. **Close** the MOXA CP-102U Series (PCI Bus) configuration window by **clicking OK.**
9. **Close** the **Device Manager.**

Continue with the normal procedure to install the software.
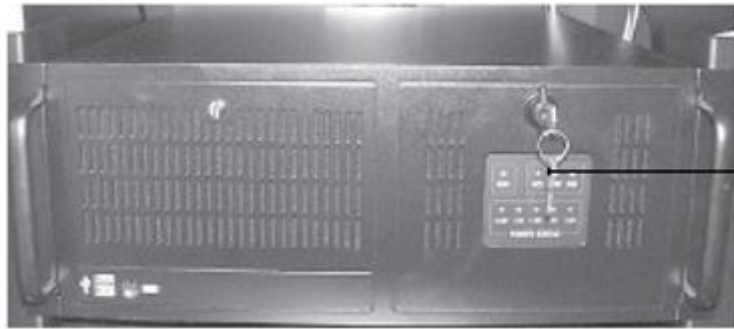


Figure 1

## 1.4    Barcode Printer (Optional)

Install printer driver to COM4 (for barcode printer).
Configure port COM4: Baud rate: 9600 Data bits, 8 Parity, No Stop bits, 1 Flow control: Xon/Xoff

1. Open Settings – Printers;

2. Select Add printer;

3. Select 'My computer';

4. Select and configure if needed the printer port (LPT1 or COM) COM4;

5. Select driver. On the Setup Assistant Application CDROM the Windows XP printer driver for Zebra printers can be used in case a Zebra printer is used. (D:\drivers\Zebra LP 2844 Drivers)

6. Enter the printer name "Zebra LP 2844"

7. Finish the wizard: When requested for a file location type: C:\Windows\i386;

8.

9. Open the properties window of the new printer

10. Select the tab: Advanced

11. Select the radio button "Print directly to printer"

Now the printer/printer driver is configured and installed. It is now possible printout barcodes from Setup Assistant.

**NOTE:** **The optional barcode printer can be connected to the loading unit or to the Setup Assistant controller in the machine when the 'Lite' mode has been enabled.**

**NOTE:** **For the printing of barcode labels, Setup Assistant supports the ZPL or EPL format. These formats are Zebra Printer Language.**

TAB 6 Installation

*Assembleon*

## CHAPTER 2   Installation Setup Assistant 5.20 Application software

The installation of Setup assistant 5.20 application software can only be done via an initial installation. This means that no upgrades or updates are possible. When a previous version of SA is installed: configuration settings must be backuped and the installed SA must be un-installed. After the Setup assistant software is removed the new setup assistant software can be installed according this chapter.

There are several options to install the Setup Assistant:
1. Setup assistant for a loading unit

2. Setup assistant for AX-201 placement machine

3. Setup assistant for AX-3/5 placement machine

4. Setup assistant for M-Series placement machine

5. Setup assistant on a Desktop (no machine connected)

### 2.1   Setup Assistant 5.20 on a loading unit + AX 201 + AX-3/5 + M-Series

Remark on M-Series configuration:
If Assembléon Valor traceability software is used, then this must be at least version 5.11.xxx. (PA 3010/15 or 3020/15).
First install the traceability software, then install Setup Assistant.

To make sure the system controller is booting Windows XPe. Switch on the
1. loading unit
2. setup assistant system controller on a placement machine
If Windows XPe fails to boot (re-) install Windows XPe.
1. Place the Setup Assistant application CD in the CD-ROM drive of the Setup Assistant computer
2. Select <Start> -> <Run...> D:\setup.exe
3. Follow the instructions on screen.
4. When the controller type must be chosen, select:
5. 'Loading unit' for the loading unit
6. System controller (AX 2 series) for an AX 201 machine
7. System controller (AX 3-5 series) for an AX- 3/5 machine
8. System controller (MG series) for an MG-1 or MG-8 machine
9. For MG Also select the used options
    a. (FES Cart, ATS, Fixed feeder bank or Fixed feeder tray bank)
    b. APCO (Automatic Program Changeover) is used or not.
    c. IP address of the machine
    d. Used placement program file format (VIOS TEXT, YGX or VIOS)
10. When asked for the 'Unique machine name:' fill in a unique Machine name (e.g. the hostname of the loading unit or system controller). If the loading unit is not connected to the network a dummy name can be entered.
11. Select or deselect the additional task that must be done during the installation. Diagnostic files are stored in the directory C:\Setup Assistant\diagnostics. To delete the diagnostics select the option "Delete diagnostics". The backup of the old configuration is still available on: c:\Setup Assistant\backup\>>
12. An overview is presented on how the installation will be executed. In case the installation settings are wrong select the "<Back>"-button to correct the settings. To abort the installation use the "Cancel"-button. To continue and finish the installation use the "Install"-button.
13. A progress bar is presented. In case of errors or required user input abort the installation and reinstall the Operating system Windows XPe.
14. After the installation has finished the Configuration profile can be selected.
15. In case of a first installation (and no previous configurations are available) click <Next>
16. In case a configuration file from on another location should be used (e.g. from another installation or configuration), browse to this file or enter the path. When <Next> is clicked the file is copied to the default configuration location.

TAB 6 Installation

*Assembleon*

17. Select "Finish" to complete the installation.

### 2.1.1 Additional software tools
After the installation some additional software tools are required on the loading unit:
1. Touch screen driver (see XX)

2. Firmware flash tool to upgrade the firmware of the trolley controller board of the trolley (see XX installing FLASH software on loading unit).

3. Configure the Loading Unit to a network (see network support)

4. Manually update the configuration file with the customer specific settings (see software configuration)

### 2.1.2 Configure the AX-201 control software
After the installation of the Setup Assistant software is finished the AX-201 control software must be configured.
1. Start the AX-201 machine and logon as Administrator (refer to the AX-201 manuals)

2. Open an explorer (<Windows>-key & <E>-key)

3. Open de file C:\aSC\config\startup.cfg with notepad

4. Remove the ";" at line of CIM (SVS Pro module)

5. Save file and reboot the AX-201

## 2.2 Configure internal network settings AX-201

The Setup assistant controller needs to be connected to the internal network. The connection between the Setup Assistant and a PC of the configured automatically (The hardware connection is described in the AX-201 section of this tab). The AX-201 Windows will assign the correct network settings (IP address) so no internal network configuration is needed.
The factory default for AX-201 SA system controller IP address is: 192.168.1.32.
In case a kit splice detection (9498-396-02429) or a HUB is installed check SI-A-Series-073.

**NOTE:** **Do not connect a factory network e.g. for database support or iTAC, to the internal AX-network. Use the external network support. The internal network has a fixed IP address range.**

## 2.3 Configure network settings AX-3/5

The following settings are only required when installing the Setup Assistant for an AX-3/5:
1. Check the AX-3/5 controller IP address. In most cases the network address of the AX-3/5 for the internal address range is 192.168.0.x or 10.0.0.x..

The factory default for AX-301/501 SA system controller IP address is: 10.0.0.32

TAB 6 Installation
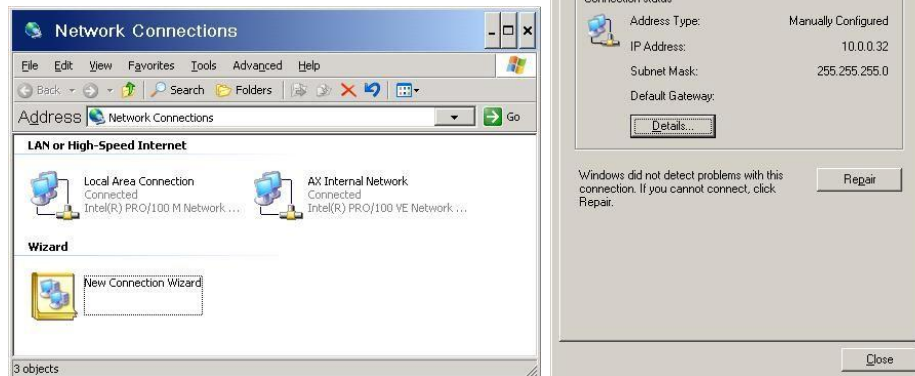


### AX-3/5 System controller IP settings

1. If necessary, modify the IP address of the Setup Assistant system controller.
2. Change network properties
3. Select <Start> → <Settings> → <Network Connections>
4. Select "AX Internal Network" with a 'right mouse click'. Then select properties.
5. The "AX Internal Network Properties" screen will appear. Select "Internet Protocol (TCP/IP)", and click Properties.
6. Select "Use the following IP address:" and make sure the first part (1) is identical to the AX-3/5 settings. The second part (2) must be "32"
7. Click Ok
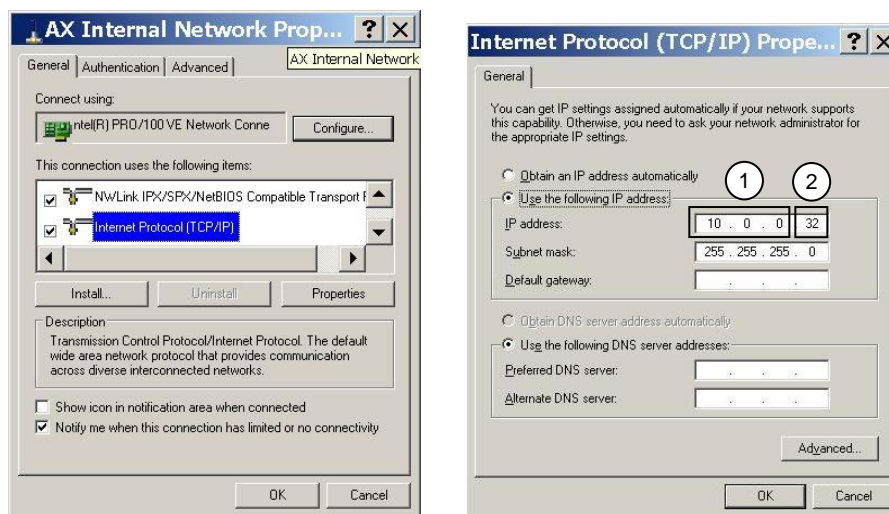


### Local Area Connection/Internet Protocol Properties

1. Now the Setup Assistant controller and the AX-3/5 are correctly configured and can be used.
2. In case the Setup Assistant is not connected to the AX-3/5 HUB, connect the Setup Assistant controller on the AX-3/5 network (Hub) temporary and connect a monitor to the Setup Assistant system controller.
3. Select power down on the AX. The Setup Assistant controller should also start a power down procedure and a message should appear: "Shutdown in progress". Followed by a message "It is now safe to turn off your computer", "Restart".

TAB 6 Installation

*Assembleon*

4. In case the Setup Assistant system controller is not yet placed in the base of the machine, place the Setup assistant in the base according to the procedure in chapter 8 of this tab.

**NOTE:** **Do not connect a factory network e.g. for database support or iTAC, to the internal AX-network. Use the external network support. The internal network has a fixed IP address range.**

### 2.4 Install Touch Screen Drivers on loading unit

To allow the use the loading unit without using the mouse and keyboard the loading unit is equipped with a touch screen. For the touch screen a Windows XPe touch screen driver must be installed.

1. Check if the serial port for the touch screen is COM1.

2. (Re)-Start the AMS Setup Assistant system controller

3. Place the "AMS Setup Assistant Application" CD in the CDROM-drive

4. Open an explorer (<Windows>-key & <E>-key)

5. Go to "D:\drivers\ELO XPe driver"

6. Double click on executable "sw500926.exe" to start the installation of the touch screen driver. The driver is zipped and after the unzip is finished the true installation of the touch screen driver will start:

18. Follow the instructions during the installation of the touch screen driver.
19. Select COM1 for the touch screen.
20. reboot when finished.
7. After the restart of Windows XPe follow the instructions on the screen to calibrate the touch screen.

### 2.5 Mandatory registry settings on AX-201, AX-301 and AX-501

On all machine controllers (AX-201, AX-301 and AX-501) these settings must be done:

Add a system variable in the registry (this is not created when the application is installed):

The location in the registry:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session
Manager\Environment
```

The name and assignment of the variable:

```
JPI_PLUGIN2_NO_HEARTBEAT=true
```

### 2.6 Installing FLASH software on Loading Unit

1. This procedure can be found in section E8.3.3 of the Service Manual of the A-Series Feeder Trolley manual number: 4022-593-51233.

# CHAPTER 3    Re-installation or update of Setup Assistant 5.20

Upgrading SVS Pro or updating Setup Assistant to the latest version is done by de-installing the old software version and installation of the new version.

### 3.1    **SVS Pro upgrade to Setup Assistant:**

For SVS Pro backup all configuration settings (SVSPro.cfg, Parts.sec, Splice.xml) must be backuped. Normally this will fit on 1 floppy. Make sure all windows configuration settings like network addresses, printer settings, user accounts etc. are saved. During the installation of Setup assistant all these settings will be lost.

### 3.2    **Setup Assistant update**

To upgrade Setup Assistant backup all configuration settings of Setup assistant (Network settings, Printer settings and user accounts remain if no new Windows XPe image is installed). After this the setup assistant software must be uninstalled according to chapter 4. Then install the new Software.
After the Setup Assistant software is installed all configuration files need to be restored.

**NOTE:**    **When upgrading Setup Assistant and the machine control software make sure first the machine control software is upgraded and running before upgrading the Setup Assistant software.**

TAB 6 Installation

*Assembleon*

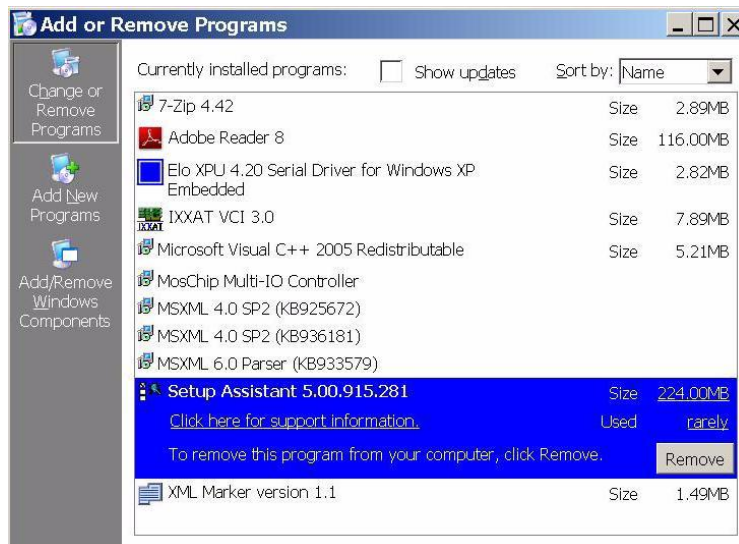# CHAPTER 4 Removal of the Setup Assistant application SW

Before the software will be uninstalled make a backup of the configuration settings if they are needed for future usage.
Un-installing the Setup assistant software is done via the windows function to remove an application.

8. Go to <START> → <Settings> → <Control Panel> → <Add or Remove Programs>

9. Select the Setup Assistant and click the "**Remove**'-button.

10.



**Add/remove software**

# CHAPTER 5    Windows XP License

Each Windows XPe software installation requires a 'Certificate of Authenticity', or CoA, to be available with the machine or loading unit: This Windows XPe CoA is a small sticker that will be placed/available on the machine or loading unit. This chapter describes how to check if the Windows XPe license is placed and what action need to be done in case an installation or upgrade of Setup Assistant software must be done.

## 5.1    Location of the Windows XPe license for Setup Assistant

The Windows XPe license is placed on a specific location on the machine.
Note: placing the sticker on the Setup Assistant system controller is not recommended because a replacement of a broken Setup Assistant controller would required a new Windows XPe license.
Location of the XPe license:
1.  AX-201: the front lower right side on the system controller
2.  AX-3/5:  the rear left side behind the door near the air pressure control
3.  Loading unit: the rear lower left side near the serial/type
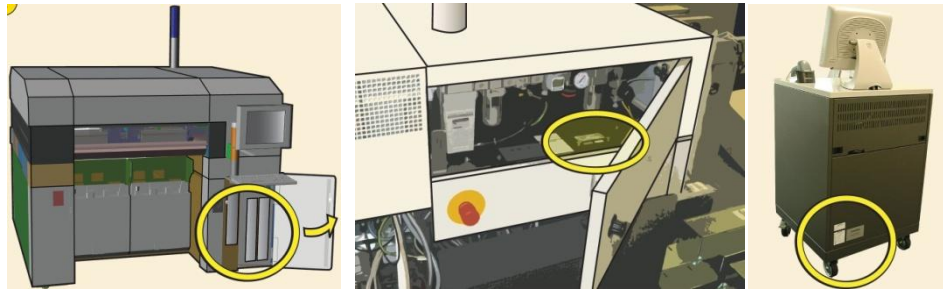


**Windows XPe license location on the AX-201, AX-3/5 and Loading Unit**

When Setup Assistant is already installed (in case of a new delivery of a placement machine or loading unit) the Windows XPe sticker is placed in the appropriate location.

TAB 6 Installation

*Assembleon*

# CHAPTER 6   Trolley Control Board (TCB) firmware installation

Flash software needs to be installed in the Loading Unit to be able to download firmware to the TCB (trolley control board).

For the installation of the Flash tool and the firmware on the loading unit refer to §*0 2.6 Installing FLASH software on Loading Unit*

## 6.1   Firmware download

New firmware versions can be loaded into the flash memory of the feeder trolley controller with a flash memory programmer program. The firmware tool can be installed and used on a system/laptop that runs Windows (NT or later), this is the preferred procedure. The flash programmer runs in most cases on the Setup Assistant loading unit controller and uses COM4 to download the firmware into the flash memory.

**Download process via Loading Unit**

1. In case there is no automatic logon as Administrator, login on the loading unit as **Administrator** (password is default Administrator).

2. Disconnect the trolley from the loading unit.

3. Set the trolley controller board to firmware download mode using the jumper settings for the Firmware download operation.
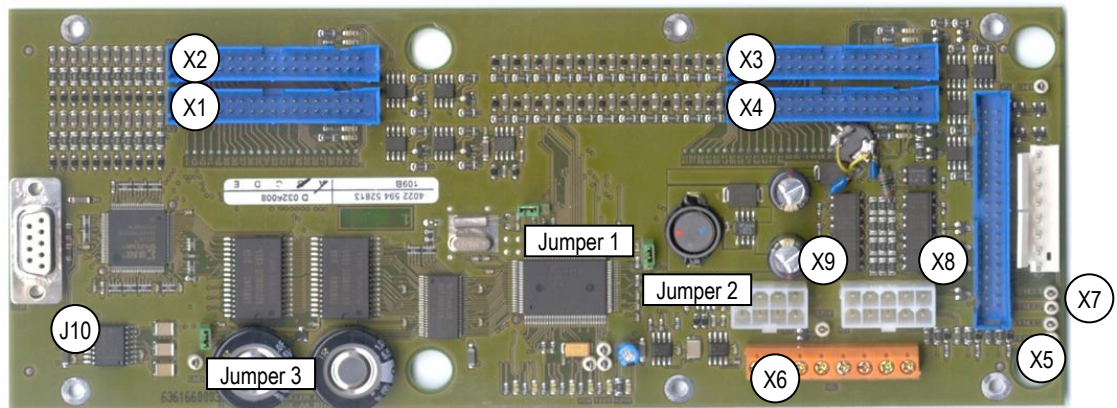


**Trolley Control Board**

| Jumper settings on trolley controller board | | | | |
|---|---|---|---|---|
| **Function** | **Jumper 2** | **Jumper 3** | | **Jumper 4** |
| | 1 - 2 | 1 – 2 | 2 – 3 | 1 – 2 |
| Normal (SA) operation | open | closed | open | closed |
| Test-mode operation | closed | closed | open | closed |
| Firmware download operation | X | open | closed | closed |
| Battery disconnected from RAM (Clear non volatile memory). | X | X | X | open |
| | | | X  = Jumper state is irrelevant | |

4. Connect the TCB firmware download cable to the serial connector of the TCB and to COM4 on the loading unit using the cable delivered with the loading unit (this is a standard serial extension cable, one male and one female serial connector).

5.

**Firmware download cable**
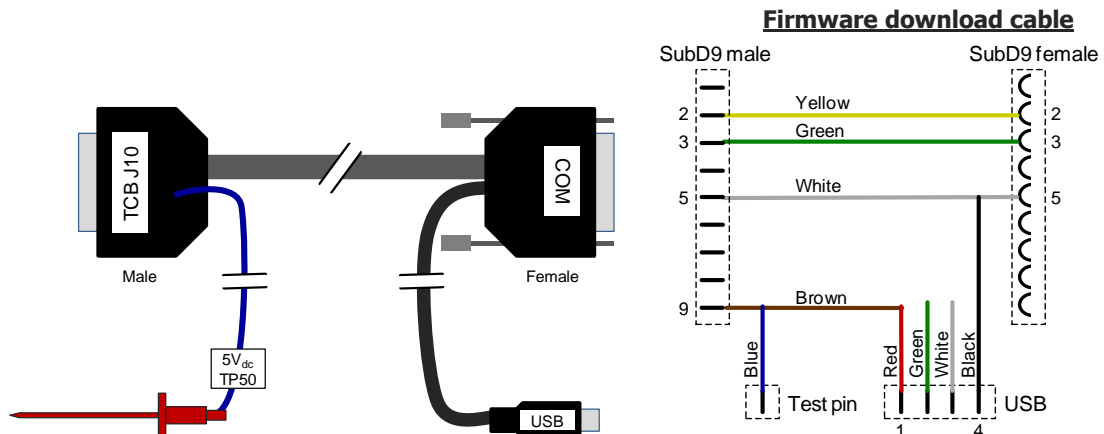


Schematic drawing of the download cable

6. Connect the USB plug to the USB connector of the system controller. Connect TP50 connector on the TCB.

7. Start the Flash Memory Programmer using the shortcut on the desktop of the loading unit. The following main-screen should appear:



8.
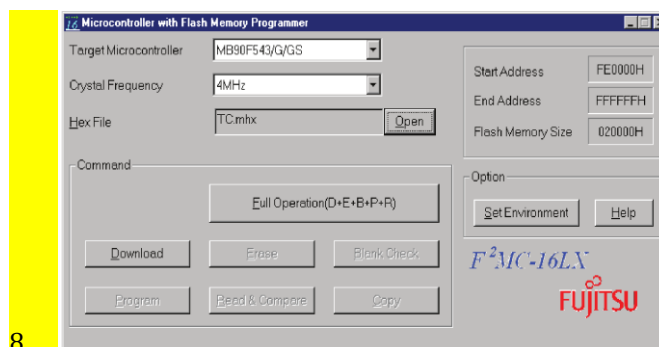
**Main screen Flash memory programmer**

9. Configure the programmer as follows (note that any previous settings are stored. Configuration is only required once):

4. Target Microcontroller:     MB90F543/G/GS
5. Crystal Frequency: 4MHz
6. Option, Set Environment:    choose COM 4 to be used for downloading (if applicable first de-install the printer on COM4)
7. Check the COM port settings Via Start - Settings - Control Panel - Ports - Com4 - Settings:
8. Baud rate 9600
9. Data 8 bits
10. Parity None
11. Stop bit (1 bit)

TAB 6 Installation

*Assembleon*

10. Open the firmware file that must be downloaded. This is the file with filename convention *.mhx and it is located in the TCB directory on the TCB firmware CD. The firmware files are in Motorola HeX format.

11. Turn on the power of the feeder trolley controller by connecting the trolley to the loading unit.

12. Start the flash memory programmer: Command Box – Full Operation (D+E+B+P+R).

13. Turn off the power of the feeder trolley controller and repeat steps if a timeout occurs.

**NOTE:** **Before reprogramming, remove all power from the TCB. Otherwise the programming will fail.**

14. Terminate the flash memory programmer.

15. Disconnect the serial cable from the loading unit and the trolley controller.

16. Set the trolley controller board to normal mode using the jumper settings.

17. If applicable: install the serial printer connected to COM4 on the loading unit and set the printer queue to the correct used port.

18. Restart the Setup Assistant loading unit.

## 6.2 Fixed feederbank

The controller board in a fixed feederbank can only be programmed on the machine using the power supply from the machine. Use the Setup Assistant controller, a laptop or the Loading unit to download the firmware.

**⚠ WARNING**

**WARNING.**
Do not use the trolley data/power cable from the Loading unit when the feederbank is on the machine. This will damage the Trolley Controller Board.

## 6.3 Using the firmware download cable for Setup Assistant

Systems that are used in the 'lite mode' operate without loading unit. To install new software on a TCB, there is a firmware download cable. Together with the flash program from the Setup Assistant CD-ROM the software can be installed on the TCB.
Install software on the TCB:
1. Install the flash program from the Setup Assistant CD-ROM on an available PC. There are no specific requirements for that PC other than a free COM-port and USB port.

2. Disconnect the power connection to TCB.

3. Connect the download cable to the COM-port and the USB port of the PC.

4. Connect the other side of the cable to J10 (COM-connector) and TP50 (test clip) on the TCB.

5. Install the software
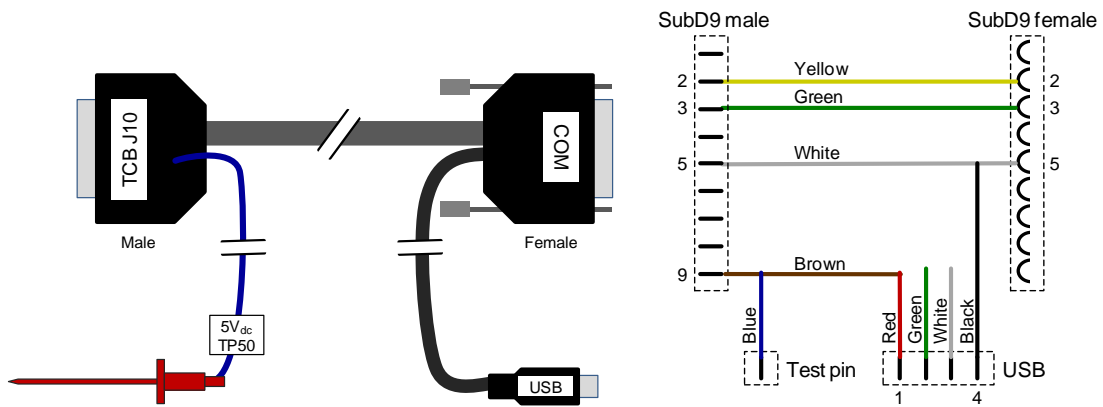
**Schematic drawing of the download cable**
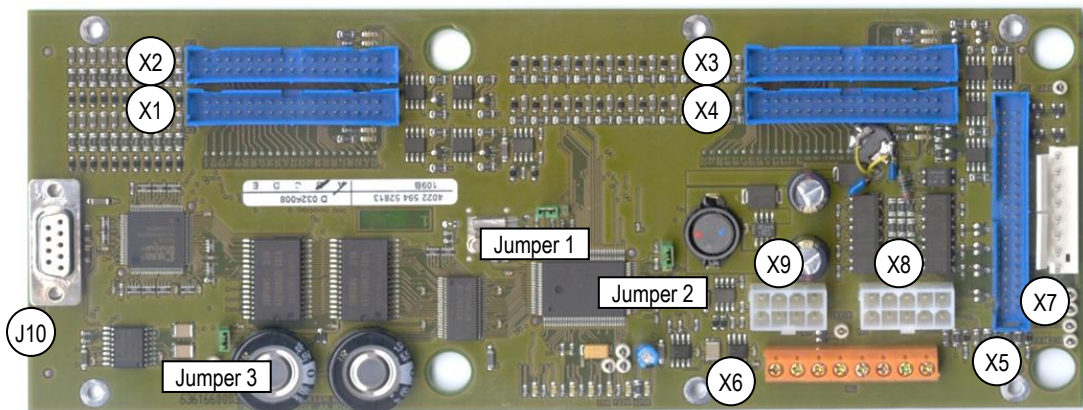


**Location of TP50**

### 6.4 Trouble-shooting:

**Problem:**

The Flash program downloads a firmware version that has been downloaded during a previous session!

Solution 1: The Flash programmer stores its settings in a file named S2.MHX that is stored in the same directory were the Flash programmer executable is stored. Remove the S2.MHX from the Flash loader directory and try again.

Solution 2: Delete the file with the .BIN extension from the directory where the image file (extension .mhx) is stored and try again.

TAB 6 Installation

**Assembléon**

## CHAPTER 7 Installation of the Loading Unit (PA2090/21)
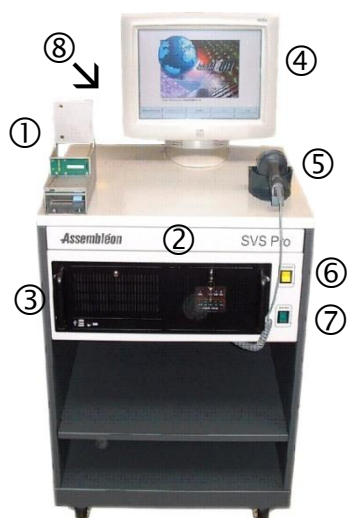


| | |
|---|---|
| 1 | Feeder loading station |
| 2 | Keyboard & mouse |
| 3 | SA controller |
| 4 | Touch screen |
| 5 | Barcode scanner |
| 6 | ON/OFF feeder loading |
| 7 | Main power ON/OFF |
| 8 | Trolley connection cable (at the rear of the LU) |

**Front view Loading Unit PA2090/21**

> **NOTE:** **The installation must be carried out by an Assembléon trained and qualified technician.**

### 7.1 Requirements

| Main power supply | | |
|---|---|---|
| Supply item | | Specification |
| Mains | Voltage | 110 or 240 Vac |
| | Power consumption | 150 VA max |
| | Frequency | 47-63 Hz |
| | External fusing | 20 A, slow-blow |
| | Mains cable | 3 x 1.5 mm2 (3 x AWG 16) |
| Earthing | | < 0.1 Ω |

| Environmental conditions | |
|---|---|
| Item | Specification |
| Temperature | + 15 to +35 °C |
| Relative humidity | 20% to 90% (no condensation) |
| Dust class | 100,000 (average industrial environment) |

### 7.2 Contents of Delivery

The delivery of the loading unit contains following items:
1. Loading unit with touch screen display (software is pre-installed)
2. 2 Mains cables (one for US/ one for EUR)
3. Serial cable for programming TCB.
4. Wired barcode scanner
5. Manual from Datalogic (barcode scanner)

### 7.3 Installation of loading unit PA2090/21

1. Unpack the loading unit according to the instruction present on the crate.
2. Inspect the loading unit parts for transport damage.
3. Open the cover at the back
4. Check the mains power plug, if it does not fit your local mains outlet replace it with a local style plug. (To be obtained locally)
5. Connect the power cable to the local mains
6. Switch on the loading unit (green switch on the front)
7. Now the loading unit is operational (Application software is pre installed)

**NOTE:** **When the system does not boot, reinstall the SW according to TAB "AMS Setup Assistant - Software"**

### 7.4 Barcode scanner configuration Firescan

The new Loading Unit, PA2090/21 uses the Datalogic FirescanTM barcode scanner.
The barcode scanner is configured for the Assembléon Setup Assistant purpose. If the scanner is not working properly, reprogram scanner according to procedure in Tab 5 *Software and configuration*

### 7.5 Barcode printer

The location to which COM port the barcode printer must be connected differs per controller. Advantech controller: use COM2 (above the parallel port connector).

### 7.6 Feeders

For SA all intelligent feeders must have 5 contact pins present (they are needed for communication and power). The "Hex" switch must be set to zero or for twin tape feeders.
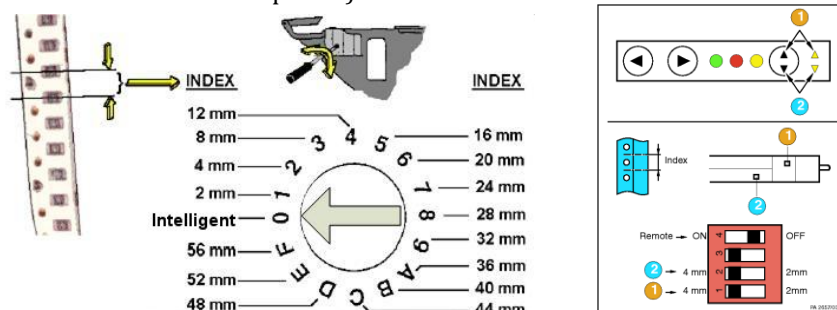


**HEX switch ITF (left) and Setup Assistant switch TTF (right)**

TAB 6 Installation

# CHAPTER 8   Installation AX-201 and AX-3/5

> **NOTE:** **The installation must be carried out by an Assembléon trained and qualified technician.**

## 8.1   Prerequisite

Before start the installation it is important to check if all requirements are available and correct:
1. Check if the contents of the package is complete and correct.
2. Inspect the items for transport damage.
3. Check if the power supply connector from the base station matches the base station connector.
4. Unpack the Setup Assistant system controller  and check visually if all cards are in the controller correct placed in the slots of the controller.

**Special Tools and materials**
1. VGA monitor, Keyboard and PS/2 Mouse are needed to install the Setup Assistant Software
2. PA 2090/85: Setup Assistant Operating and application software (2 CDROMs)
   For AX-3/5 extra tool are required:
3. Drilling machine
4. Tap (M$)
5. Vacuum cleaner
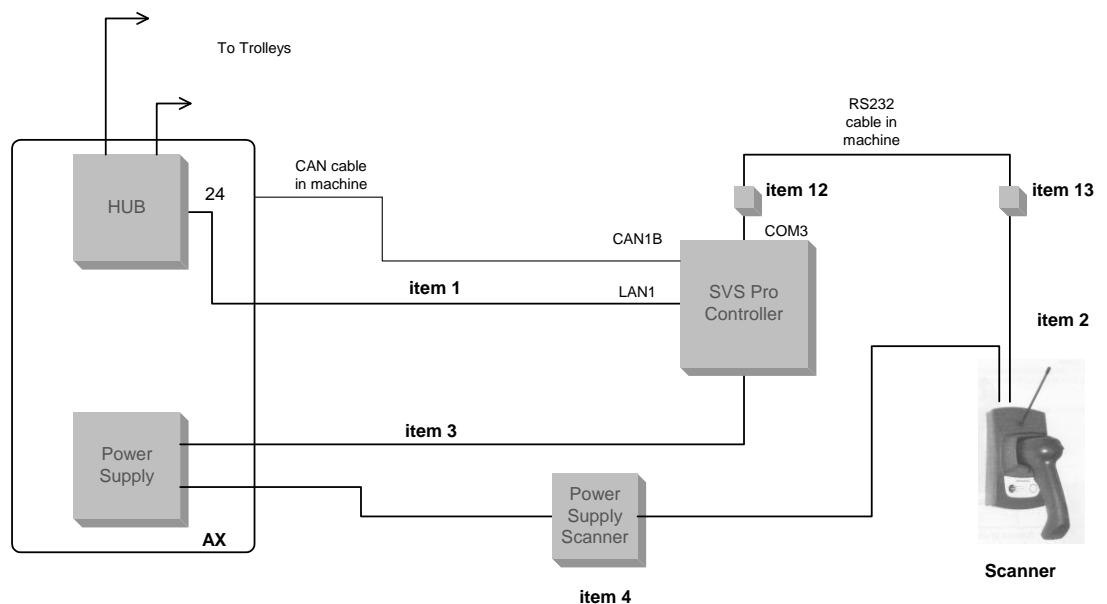


**Schematic diagram of the connections between the machine and Setup Assistant**

## 8.2   Software installation

The Setup Assistant system controller is delivered without software. Please follow the procedure in the Software section of this manual.
Reboot the Setup Assistant system controller and check if the Setup Assistant application starts up (automatic login).

> **Note:** **Setup Assistant does not start-up because it checks the connection of the AX-201.**

---

8.3 **Hardware installation**

| | |
|---|---|
| ⚠ WARNING | WARNING.<br>Make sure that the mains is disconnected from the machine as described in the safety chapter before servicing. |

| | |
|---|---|
| ⚠ CAUTION | CAUTION. ESD SENSITIVE ELECTRONICS.<br>Electro Static Discharge may cause damage to electronics. Work in an ESD safe environment or use ESD preventive measures. |

**NOTE:** **For A-Series Feeder trolley NO Setup Assistant/SVS Pro hardware upgrade is required. The Trolley Control Board firmware may need to be upgraded. For procedure Tab "Setup Assistant - Service".**

8.3.1 **Setup Assistant machine upgrade**

AX-201 machines are Setup Assistant prepared. This means only the Setup Assistant system controller, base station with barcode scanner and Setup Assistant barcode stickers are needed to be mounted.

For an AX-3/5 some small adjustments of the base are required. These are described in §0 *8.6 Hardware adjustments for AX-3/5 SA controller* on page 29.

8.3.2 **Installation time**

Per AX-201: 4 hours
Per AX-3/5: 2 hours

TAB 6 Installation

**Assembleon**

### 8.3.3 Contents of delivery AX-201

| Items for SA installation on AX-201 (PA2090/56/58) | | | | |
|---|---|---|---|---|
| **Item** | **Code number** | **Description** | **Qty** | **Remarks** |
| 1 | 4022-594-13611 | VGA EXTENSION CBL 2MTR | 1 | |
| 2 | 4022-589-97031 | SUPPORT FOR SCANNER | 1 | |
| 3 | 2522-600-27029 | WASH STL ST A4 5,3X10 | 4 | Use with item 4 |
| 4 | 2522-006-04205 | CH SCR SKT STL ST M5X8 | 4 | To mount (item 2) to the machine |
| 5 | 4022-512-40402 | SVS BARCODE SET | 1 | |
| 6 | 4022-538-76101 | ASSEMBLEON STICKER A6 | 2 | |
| 7 | 4022-591-01781 | ID PL SVS PRO KIT AX-201 | 1 | |
| 8 | 4022-594-12211 | SERIAL CABLE BCR | 1 | |
| 9 | 4022-594-54101 | UTP CROSS CABLE 1.5MTR | 1 | |
| 10 | | RF SCANNER | 1 | 933MHz or 410MHz |
| 11 | | BASE STATION | 1 | 933MHz or 410MHz |
| 12 | 4022-594-54173 | AMS SA CONTROLLER | 1 | |
| 13 | 2522-032-00003 | HEX BOLT ST.8.8 ZN M4X10 | 1 | Replacement screw for base station |
| 14 | 4022-596-00311 | XP LIC UPG AX201 | 1 | |

**NOTE:** **Software and manuals are not included in the machine upgrades and manuals are only available as PDF files.**

### 8.3.4 Contents of delivery AX-3/5

| AMS Setup Assistant/SVS Pro AX-3/5 (PA2090/62/64 | | | |
|---|---|---|---|
| **Item** | | **Description** | **#** | **Remarks** |
| 1 | 4022-594-1238.0 | System Controller | 1 | |
| 2 | 4022-591-0719.0 | SVS Pro kit AX | 1 | **Error! Reference source not found.** |
| 3 | 4022-594-2292.0 or 4022-594-2294.0 | RF barcode scanner | 1 | |
| 4 | 4022-594-2293.0 or 4022-594-2295.0 | RF Base Station | 1 | |
| 5 | 4022-592-41881 | XP LICENCE | 1 | |
| 6 | 4022-589-77010 | UTP-Cable cat.5 L=1m | 1 | network cable |
| 7 | 4022-594-12210 | Serial cable BCR | 1 | cable from barcode reader to SVS Pro controller COM3 |
| 8 | 5722-660-30670 | Cord set GY3x0,75 - 1,8m | 1 | power cable for SVS Pro controller |
| 9 | 4022-594-14660 | PS Scanner SVS Pro | 1 | power supply for RF Scanner |
| 10 | 4022-589-73280 | Support for scanner | 1 | |
| 11 | 4022-589-77530 | Strip | 2 | strips for installing controller in machine |
| 12 | 2522-203-04045 | csk scr stl st M5x8 | 4 | screws for installing strips to machine |
| 13 | 2522-600-27029 | wash stl st A4 5,3x10 | 4 | washers for installing scanner support to machine |

| AMS Setup Assistant/SVS Pro AX-3/5 (PA2090/62/64 | | | | |
|---|---|---|---|---|
| **Item** | | **Description** | **#** | **Remarks** |
| 14 | 2522-006-04205 | ch scr skt stl st M5x8 | 4 | screws for installing scanner support to machine |
| 15 | 4022-538-82180 | AX SVS barcode set | 1 | |
| 16 | 4022-538-82190 | Gender changer 9way M-M | 1 | for installing COM cable on older machines |
| 17 | 4022-538-82200 | Gender changer 9way F-F | 1 | |

**NOTE: Software and manuals are not included in the machine upgrades and manuals are only available as PDF files.**

## 8.4 Installation on AX

Before installing the Setup Assistant system controller in the machine:
1. Check the system controller outside of the machine by installing the Windows XPe operation system and Setup Assistant application.
2. Place the XPe license
3. Check the Bios settings

The correct place for the XPe license and the Bios settings can be found in the service tab of this manual.

### 8.4.1 Install the base station and scanner
1. Unpack the barcode scanner / base station.
2. Inspect the parts for transport damage.
4. Remove the cover plate
5. AX-201: on the front left side of the machine.
6. AX-3/5: on the front side from the door under the run-in
7. Check if the power plug going in the base station is correct.

⚠ **CAUTION**

> **CAUTION.**
> For the power connector on the base station: Inner contact is - (Minus) and outer contact is + (Plus).

1. Mount the bracket on the cover with 4 screws M5 and washers and slide the serial cable and the power cable through the hole in cover and bracket (2).

2. Mount the base plate of the base station on the bracket (2 screws) (3)

3. Connect the serial cable and the power cable to the base station. Make sure the serial cable is mounted to the correct connection. Use tire wraps to fix the cables to the bracket.

4. Place the cover back on the machine.

5. Degrease the areas where stickers are placed (see figure for the correct places)

8. Place the "Control barcodes" sticker on machine cover
9. Place the "Rescan Barcode" sticker on the scanner bracket
6. Place the antenna on the base station see figure.

    1. Place barcode scanner on base station to charge the batteries if the machine is switched on

TAB 6 Installation
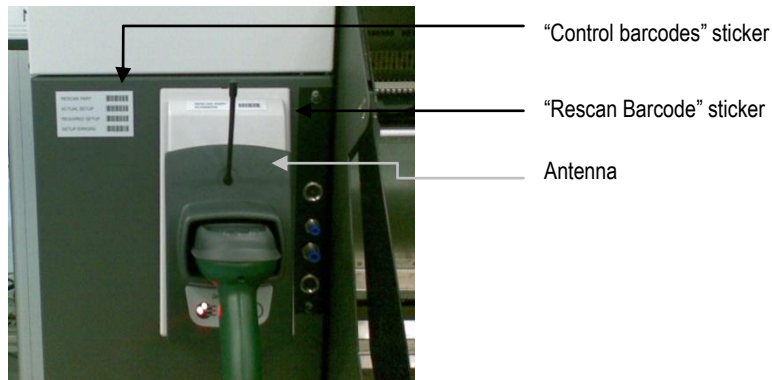
**Positions of stickers and antenna**
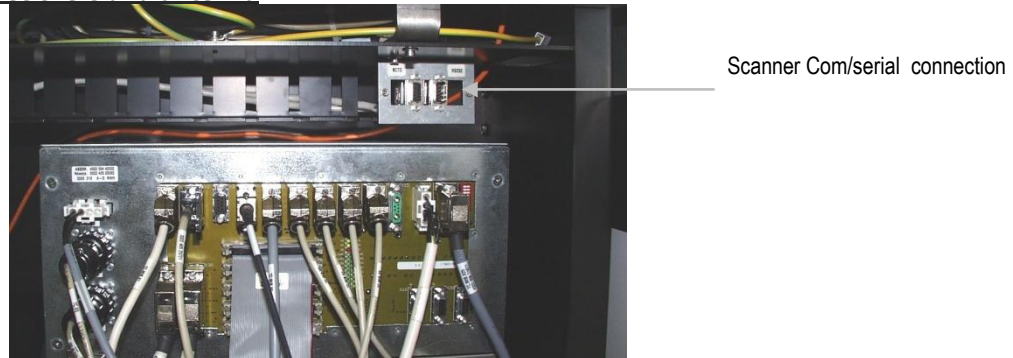


**Scanner com cable connection for AX-3/5**

8.5     **Setup Assistant system controller**

1.  Open the door under the run-out section to access the Setup Assistant system controller and lead the cables out of the machine.
2.  Add a network cable to:
    *   the HUB (for AX-5/3 and AX-201 with splice detection)
    *   APC controller (X51) in case of AX-201
3.  AX-3/5 only: mount the brackets on both sides of the system controller.
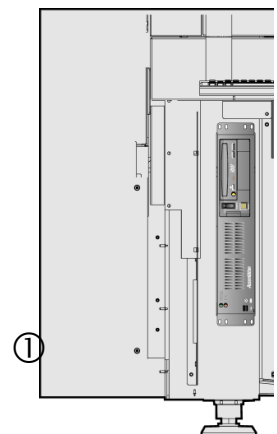


**SA controller AX-201**

**Mount brackets (AX-3/5 only)**



**Sa controller under run out of AX-3/5**

1. Connect all cables:
2. mains cable
3. RS 232 Machine System controller COM3 to COM1
4. Serial cable from barcode scanner to COM 3.
5. CAN cable to CAN1B (X32).
6. VGA extension cable to VGA. Leave the other side in the machine in such a way that it later can be reached for connection a VGA monitor.
7. Optional: report printer to parallel printer connector lpt1 (only used in SA 'Lite' mode.)

Optional: barcode printer to COM2 (only used in SA 'Lite' mode.)8.

9. Mount the SA controller in the machine. In case of an AX-3/5 continue with: Hardware adjustments for AX-3/5 SA controller

TAB 6 Installation



**SA controller connections AX 201**

**SA controller connections AX 3/5**

1 COM 3
2 CAN 1B
3 LPT1 report printer (optional)
4 Mouse (optional)
5 COM 4 Barcode printer (optional)
6 COM 2
7 LAN 1 AX Internal
8 VGA (optional)
9 Keyboard (optional)

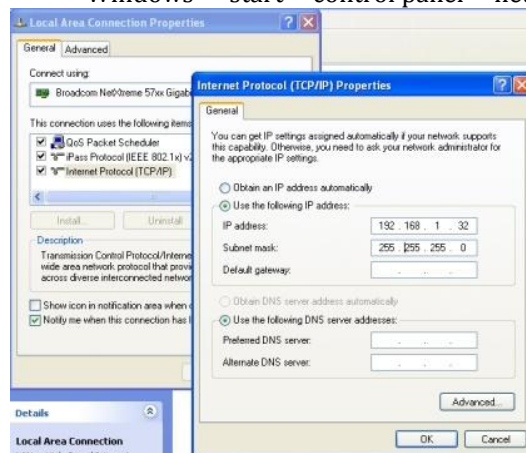**NOTE:** **If an optional barcode or report printer is installed, the drivers for those printers must also be installed on the SA system controller. Refer to the printer supplier documentation for more information.**

### 8.5.1 Internal and external network addressing

The network addresses can be found and edited via :

Windows → start →control panel →network connections



**Network connections screen**

| Factory defaults of addresses | | | | |
|---|---|---|---|---|
| **Machine type** | **Controller** | **Internal address** | **External address** | **Subnet mask** |
| AX301 / 501 | SC | 10.0.0.1 | 192.168.0.1 | 255.255.255.0 |
| | SA | 10.0.0.32 | 192.168.0.2 | 255.255.255.0 |
| AX201 | ASC | 192.168.1.1 | 192.168.0.3 | 255.255.255.0 |
| | APC | 192.168.1.2 | Not used | |
| | SA | 192.168.1.32 | 192.168.0.4 | 255.255.255.0 |
| Loading Unit | SA | Not used | 192.168.0.5 | 255.255.255.0 |

TAB 6 Installation

*Assembleon*

### 8.5.2 **AX 201 wiring diagram**
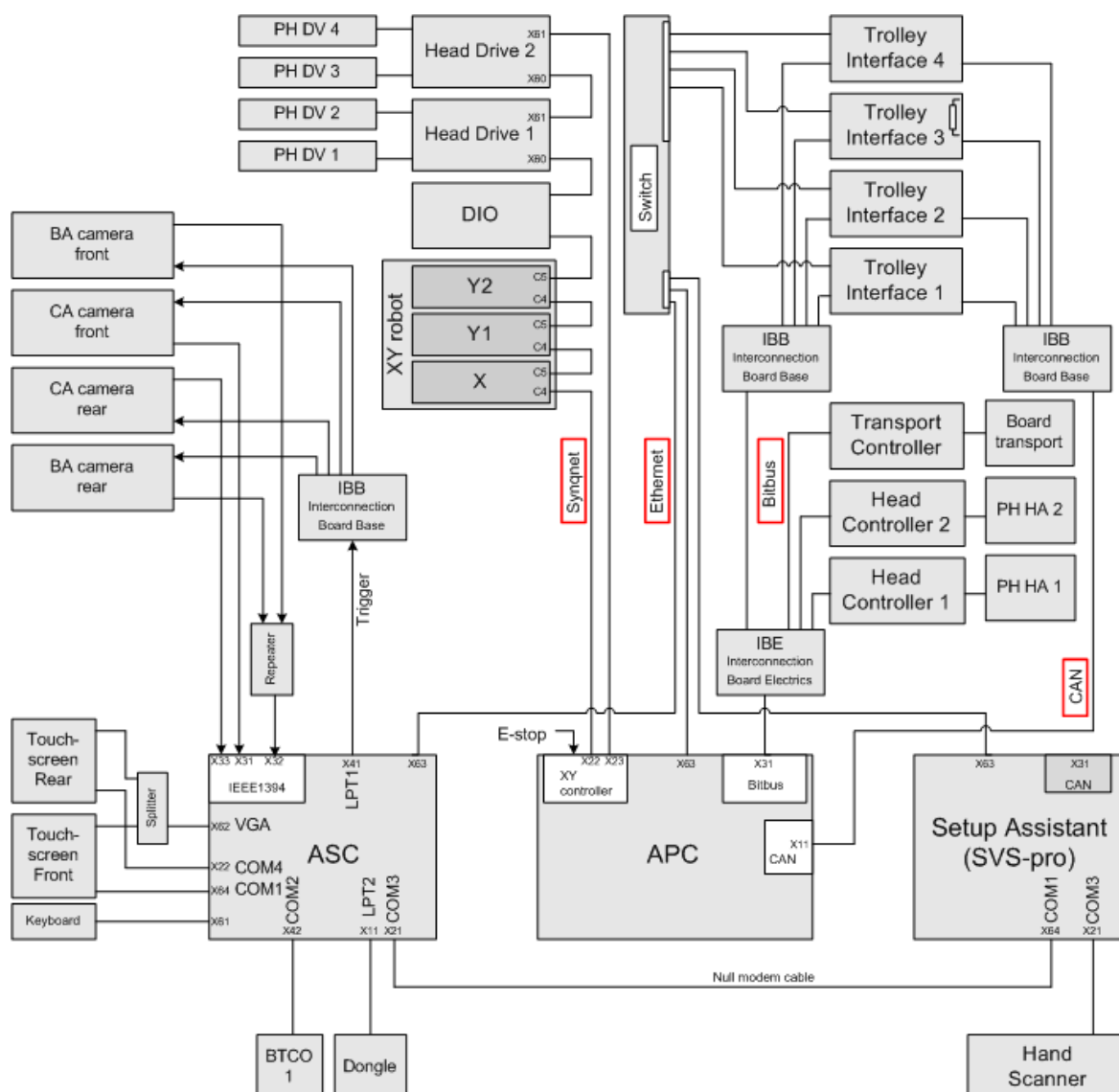
## 8.6 Hardware adjustments for AX-3/5 SA controller

1. Mount the brackets on both sides in the cabinet. Use screws+ washers

2. Drill 2 holes (Diameter 3.2 mm) in the rear left side above the AX-3/5 hub. Use a vacuum cleaner to prevent keep the machine free of any splinters

3. Use the 2 metal fill plates to mark the centre for the hole, and tap (cut thread) M4

4. Mount the 2 metal plates

5. Mount the controller in the cabinet. Fix the controllers with the screws.

6. Place ID/type plate next to existing ones
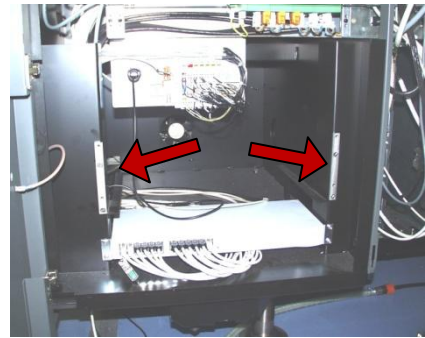

**Mount brackets**

## 8.7 Place barcode stickers and strips

Mount the position barcode strips (fix with 4 screws) on AX-3/5


**Mount position barcode strips**

TAB 6 Installation

*Assembleon*

8.8 **Configuration of AX-201 Application software**

After installing the Setup Assistant hardware the AX-201 control software must be configured:

1. On the ASC Check if port COM3 of the ASC is available and correctly configured:

2. Change the user level to "M&S Engineer"

3. Select in the 'Navigation panel' "Maintenance" then select in the 'Sub navigation panel' "Tools". Select button "Explorer".

4. Browse to "*My Computer*" and push <F5> (Refresh). Now it is possible to select the "*Control Panel*".

10. Click on "*System*". Select the Tab "*Hardware*" in the new window.
11. Click on "*Device Manager*" and select the device "*Ports (COM&LPT)*".
12. Select "*Communication Port (COM3)*". And select the Tab "*Port Settings*" in the new window.
13. Click on "Restore Defaults" to make sure the correct settings are set (see also the next table)

| Default COM port settings for AX-201 | |
| --- | --- |
| Bits per second | 9600 |
| Data bits | 8 |
| Parity | None |
| Stop bits | 1 |
| Flow control | None |

Install and configure the SA application software according to the Software tab.

# CHAPTER 9   AX-201 splice detection

The required time to install splice detection for AX-201; Per AX-201 1 hour

## 9.1      Required materials

To enable splice detection on a AX-201 the option 9498-396-02429 - "Kit splice detection" must be installed (See SI-A-Series-073). Option can be ordered via the regular channels.
The option contains the following items:

1.   4022 593 51001 Installation manual Splice defection AX-201

2.   4022 592 14261 Network Switch

3.   3 network cables

4.   4022 592 49801 Power cable for switch

**NOTE:    To use splice detection on the AX-201, Setup Assistant 5.0 or higher is needed.**

Splice detection will be implemented only for intelligent tape feeders on AX-3/5 control software 3.30 or higher and on AX-201 control software 2.00 or higher.

## 9.2      Installation and configuration

1.   Use the installation manual "Splice detection AX-201" to install the hardware in the AX-201.

2.   Switch on the AX-201 and log on with the 'Administrator' rights.

3.   Check IP address on Setup Assistant controller and compare with internal address on ASC. (SA should be 192.168.1.32).

4.   Test network connection. Open DOS-box on ASC. and type command: Ping 192.168.1.32
     In case reply is received connection is OK. If not, check network settings and cables.

5.   Enable splice detection is configuration file on C:\aSC\CIM\Data

6.   Enable SDS process in AX-201 configuration file in C:\aSC\config\startup.cfg

7.   Power down and restart machine

8.   Enable Setup Assistant and test this new option together with an operator.

Tip: you can see all splice requests and messages from and to SA on the PC. Open a remote desktop session and open the process box SDS (this process is already active on the APC).

# Assembleon

# Option Manual Setup Assistant Tab 7 Upgrade

## Table of Contents

# CHAPTER 1   Upgrade to Setup Assistant 5.2 Guide

This chapter describes the procedures to be taken when upgrading SVS Pro to Setup Assistant. SVS Pro used Windows NTe as the operating software platform where as Setup Assistant uses the Windows XPe as the operating software platform.

The upgrade process will take several steps to be followed depending on the used configuration of hardware and software.

## 1.1   Hardware upgrade

To run Setup Assistant on the machine it may require hardware upgrades on the machine. The Setup Assistant will only work on:

- AX-201 with control software 3.0 or higher (refer to the AX-201 manuals on how to upgrade the control software).

- AX-3/5 with control software 3.61.915 or higher (refer to the AX-3/5 manuals on how to upgrade the control software).
  - o   In case the SVS Pro system controller is still the Radisys controller then the system controller must be upgraded to an Advantech. The hardware upgrade packages are: 9498-396-00511 and 9498-396-00236. In case the hardware is upgraded make sure the configuration of the old SVS Pro is available for usage.

- Loading Unit Model 2: PA2090/21
  - o   Loading Unit Model 1 (PA2090/20 and /26 is not supported by Setup Assistant).
  - o   The Setup Assistant software can be used to prepare also configurations for other machines (e.g. ACM, FCM, AQ and GEM) that still use SVS Pro

## 1.2   Software upgrade

In case the correct Setup Assistant hardware is installed on the supported machines the preparations can be started.

TAB 7 Upgrade

*Assembleon*

# CHAPTER 2    Preparations before starting to upgrade process

Because the used operating software of Setup Assistant is changed to Windows XPe and the installation is an embedded version it is not possible to upgrade the Windows NT to Windows XPe. The Windows NT partition will simply be overwritten. This means that all configuration/settings and data installed while using SVS Pro will be lost.

The following settings may need to be saved so they can later be re-configured in the Windows XPe and Setup Assistant. Possible topics that may require attention are:

1. Network configuration
2. Network shares and maps
3. Network Printers
4. Printer drivers
5. SVS Pro configuration
6. Second Source file
7. Label templates for barcode printers

After all the configuration settings of SVS Pro are backup or noted the Windows XPe and the Setup Assistant can be installed and configured according the settings of the 'old' SVS Pro configuration.

## 2.1    Network configuration

The network configuration is only applicable in case of a loading unit. In case of the SVS Pro system controller is installed in a machine the controller is installed in the internal network of the machine. In case the loading unit is not connected to a network this section can be skipped.

| Network settings Loading Unit | | | |
|---|---|---|---|
| **Setting name** | **Loading Unit 1** | **Loading Unit 2** | **Loading Unit 3** |
| Hostname | | | |
| IP Address | | | |
| Subnet mask | | | |
| Default gateway | | | |

## 2.2    Network shares and maps

In case the loading unit is not connected to a network this section can be skipped. The network shares and maps are only applicable in case of a loading unit. These settings can be unique for each unit and so need to be noticed for each unit. In case of a SVS Pro system controller installed in a machine the controller is installed in the internal network of the machine.

| Network shares and maps used on Loading Unit | | | |
|---|---|---|---|
| **Setting name** | **Loading Unit 1** | **Loading Unit 2** | **Loading Unit 3** |
| Hostname | | | |
| IP Address | | | |
| Subnet mask | | | |
| Default gateway | | | |

TAB 7 Upgrade

### 2.3 Network Printers and printer drivers

In case no printers are used this section can be skipped. These settings can be unique for each unit and so need to be noticed for each unit. When printers are used for SVS Pro these must be re-installed after Windows XPe is installed. Please note that windows XPe printer drivers usually differ from the used Windows NT printer drivers. The correct drivers must be installed for each printer.

Note: In case network printers are used the driver also needs to be installed.

| Printers used | | | | |
|---|---|---|---|---|
| Setting name | Machine 1 | Machine 2 | Machine 3 | Loading Unit |
| Printer model/type | | | | |
| Printer name | | | | |
| Port used | | | | |

### 2.4 SVS Pro configuration

The SVS Pro configuration file (svspro.cfg) cannot be used with Setup Assistant. Customized configuration settings from the SVS Pro systems need to be manually 'converted' and configured in Setup Assistant. These configuration settings of SVS Pro are on all machines equal so this conversion only needs to be done once and distributed over all loading units and machines that use Setup Assistant.

The settings to be noticed are divided in 2 sections. The barcode related configuration and the SVS Pro features configuration. Open the svspro.cfg file with "Notepad" and fill in the following tables to get an overview of what is configured in SVS Pro (The settings are from the latest SVS Pro version (SVS Pro 4.20). In case an older version of SVS Pro is used it means that certain parameters are not available. In that case use the standard configuration).

The barcode settings in SVSPRO.cfg:

| Barcode settings and other options in SVSPro | | | | | |
|---|---|---|---|---|---|
| Ref | SVS Pro barcode type | Col. 3 Edit | Col. 4 length | Col. 5 Reg. Expression | Col. 6 Format |
| 1 | Operator ID | | | | |
| 2 | PartNumber | | | | |
| 3 | Quantities | | | | |
| 4 | Lot Code | | | | |
| 5 | Vendor Code | | | | |
| 6 | Combined Vendor & Lot Code | Obsolete (Not used or required) | | | |
| 7 | Reel ID | | | | |
| 8 | Order ID barcode (8) | Obsolete (Not used or required) | | | |
| Ref | Barcode type | Col.2 Reg. expression | Col.3 Format | | |
| 9 | Composite barcode 1 | | | | |
| 10 | Composite barcode 2 | | | | |
| 11 | Composite barcode 3 | | | | |

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| Ref | SVS Pro feature | Parameter 1 | Parameter 2 | Parameter 3 |
|-----|-----------------|-------------|-------------|-------------|
| 12 | Part_Mask | | | |
| 13 | Additional_Compare_Set | | | |
| 14 | Randomscan | | | |
| 15 | ANSI_Barcode_Reader | **Obsolete (Not used anymore or required)** | | |
| 16 | Family_Setup_Scenario | | | |
| 17 | Second_Source_File | Path: | | |
| 18 | Setup_Report_File | **Obsolete (Not used anymore or required)** | | |
| 19 | Operscan | Time in seconds: | | |
| 20 | Forced_Operator_ID_Rescan | | | |
| 21 | Forced_Feeder_Rescan | | | |
| 22 | Lite_Functionality | | | |
| 23 | Program_Wrongsplice | **Obsolete (Not used anymore or required)** | | |
| 26 | Use_Compression_On_LU | | | |
| 27 | Lane_Scan_Only_On_LU | **Obsolete (Not used anymore or required)** | | |
| 28 | Enable_Splice_Detection | | | |
| 29 | Splice_Detection_File | Path: | | |
| 30 | Enable_Automatic_Pitch _Programming | | | |
| 31 | Report_Feeder_Errors | | | |
| 32 | Use_Order_ID | **Obsolete (Not used anymore or required)** | | |
| 33 | Use_PCB_Material_Code | | | |
| Ref | SVS Pro feature | Parameter 1 | Parameter 2 | Parameter 3 |
| 34 | Lotcode_Check | | | |
| 35 | Default_Scanner_Display_Language | **Obsolete (Not used or required)** | | |
| 36 | Amounts | | | |
| 37 | Tape_Short | | | |
| 38 | Frequent_Quantities_Updates | **Obsolete (Not required is always on)** | | |

TAB 7 Upgrade

**svspro.cfg configuration file from the SVS Pro controller opened in notepad**

## 2.5    Second Source file

In case no second source components are used this section can be skipped. The second source file can be re-used in Setup Assistant. This means the file parts.sec must be saved to a floppy so it can be re-installed in Setup Assistant. In case of AX-3/5 machine the second source file parts.sec is located on the machine and therefore is not needed to be saved. Location of the second source files (*part.sec*):

- AX-201: on the SVS Pro system controller in directory: C:\Svspro\Data\SC\Second source\parts.sec
- Loading Unit: in directory: *C:\Svspro\Data\LU\Second source\parts.sec*

## 2.6    Label templates for barcode printers

In case no barcode printers are used section can be skipped. Label templates need to be used when barcode printers for SVS Pro. These templates are located on the loading unit or the SVS Pro system controller. Copy the used label definitions to the floppy. In case of the loading unit the barcode label definition file is located *C:\SVSPRO\Data\LU\LabelDefs\.* In case the barcode label printer is used on a machine the label templates are located on the SVS Pro system controller in directory: *C:\SVSPRO\Data\SC\LabelDefs\.*

## 2.7    Installation of Windows XPe and Setup Assistant software

For the installation of Windows XPe and the Setup Assistant application refer to the installation tab.

TAB 7 Upgrade

*Assembleon*

# CHAPTER 3   Configuring Setup Assistant according preparation settings

After the Windows XPe and Setup Assistant is installed and running the following configuration needs to be set:

- Network configuration: Enter the network configuration settings according the notes made in
- Network shares and maps
- Network Printers
- Printer drivers
- SVS Pro configuration
- Second Source file
- Label templates for barcode printers

## 3.1      Network configuration:

Enter the network configuration settings according the notes made (see 0 2.1      Network configuration).

## 3.2      Network shares and maps

Enter the network shares and map settings according the notes made (see 0 2.2    Network shares and maps).

## 3.3      Printer drivers

In case no printers are used this section can be skipped. Get and install the Windows XPe printer driver that can be used for the printer (also in case of a network printer). For the used configuration of the printers like used ports printer server etc. enter the (network) printers settings according the notes made (see 0 2.3      Network Printers and printer drivers).

## 3.4      Setting SVS Pro configuration in Setup Assistant

This section describes who SVS Pro configuration settings must be set in Setup Assistant configuration.xml file. Each setting made in the SVS Pro configuration file (SVSPRO.cfg) noticed (see 0 2.4        SVS Pro configuration) must be translated and entered for a certain attribute/parameter in the Setup Assistant configuration file.
There is a converter feature available in the latest Setup Assistant[1].

1. Go to:  **<Start>** → **<Programs>** → **<Assembleon>** → **<Setup Assistant>** → **<Setup Assistant>**
   The internet explorer is started

2. Select on the left side "configuration conversion".

3. Select the svspro.cfg file and press the '**Convert**'-button. The svspro.cfg file will be converted into a new window containing the settings for Setup Assistant.

4. Save the file on the correct location. Use <**File**>→ <**Save as**>.
   The default location is: *C:\program files\assembleon\SetupAssistant\config*

Note: This conversion only applies to SVS-Pro, if an earlier version of Setup Assistant (5.1 or 5.1) is upgraded to version 5.2 then the configuration from Setup Assistant can be upgraded automatically during the installation of the software.

---

[1] Advice: even if composite barcodes were not used in SVS-Pro it is better to uncomment the example composite barcodes in the svspro.cfg file before this conversion is started. If there is no composite barcode present then in SA the feature remains disabled.

TAB 7 Upgrade
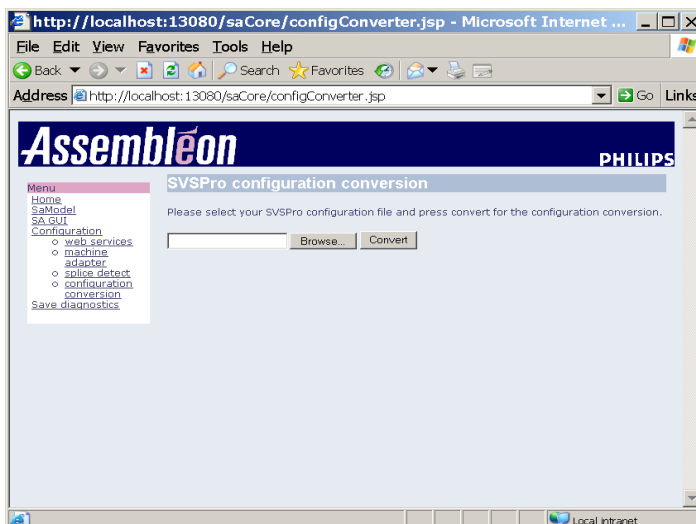


**Internet Explorer with Setup Assistant**

### 3.5 Second Source file

If no second source components are used this part can be skipped. Copy the 'original' second source file *parts.sec* that is located on the floppy to the Setup Assistant system controller in the location as defined in the configuration utility (default dir: *C:\Program Files\Assembleon\SetupAssistant\config\secondsource*).

### 3.6 Label templates for barcode printers

In case no barcode printers are used this section can be skipped. Copy the used barcode label definition from the floppy to the Setup Assistant system controller. The location is: *C:\Program Files\Assembleon\SetupAssistant\config\*
Check and change in the configuration file the 'Tag name/Text' of BarCodeTemplate to the used barcode label file.

**Note:** **Do not use any path/directory settings.**

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# CHAPTER 4    Upgrade of trolleys and banks

> **NOTE:** **The installation must be carried out by an Assembléon trained and qualified technician.**

> **NOTE:** **For Setup Assistant all feeders must have 5 contact pins present (they are needed for communication and power). The "Hex" switch must be set to zero.**

**⚠WARNING**

> **WARNING**
>
> Make sure that the mains is disconnected from the machine as described in the safety chapter before servicing.

**⚠CAUTION**

> **CAUTION** ESD SENSITIVE ELECTRONICS.
>
> Electro Static Discharge may cause damage to electronics. Work in an ESD safe environment or use ESD preventive measures.

## 4.1    Upgrade A-series Feeder trolley

> **NOTE:** **For A-Series Feeder trolley NO Setup Assistant hardware upgrade is required. The Trolley Control Board firmware may need to upgraded. For procedure see the service Tab.**

## 4.2    Upgrade FCM II feeder trolley

This installation describes the how to install the hardware for feeder trolleys used for FCM, AX-3/5.

**Parts required per FCM II feeder trolley:**
- 1 FCM Feeder trolley Upgrade SVS Pro PA 2090/10
- If the power supply in the feeder trolley is the old model (see Figure 10), a power supply upgrade is also required (see SI-FCM-593), so order:
- 1 new power supply, order code: 5322 218 11858 (for more information see SI-FCM-593).

**Special tools**
- If no loading unit available: laptop or PS/2 Mouse, keyboard and firmware download cable (9498-396-01103).
- Drilling Machine
- Tap (M4)
- Vacuum cleaner

**Installation time**
Per FCM-II feeder trolley: 45 minutes.

TAB 7 Upgrade

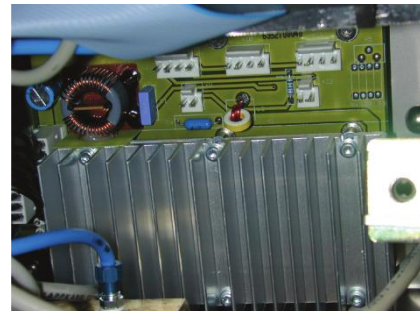4.2.1    **Contents of delivery**

| Item | Code number | Description | Qty | Remarks |
|------|-------------|-------------|-----|---------|
| **SVS Pro Feeder trolley upgrade for one FCM-II trolley (PA2090/10)** | | | | |
| 1 | 4022-594-52901 | TROLLEY CONTROLLER BOARD | 1 | |
| 2 | 4022-512-04382 | LU INTERF, CABLE FCMII | 1 | |
| 3 | 4022-512-40791 | COVERPLATE | 1 | |
| 4 | 4022-512-42561 | LOOP | 2 | |
| 5 | 4022-512-42551 | HOOK | 2 | |
| 6 | 2522-201-08033 | PAN SCR STL ST M3X10 | 4 | |
| 7 | 2522-600-27017 | WASH STL ST A4 3.2X7 | 13 | |
| 8 | 4022-512-00421 | DISTANCE BUSH | 4 | |
| 9 | 2522-201-08031 | PAN SCR STL ST M3X6 | 9 | |
| 10 | 4022-591-61481 | TYPE PL TR UPGR SVS PRO | 1 | |
| 11 | 4022-591-61491 | ID TROLLEY UPGR.SVS PRO | 1 | |
| 12 | 2522-401-09008 | HEX NUT X STL ST A4 M3 | | |
| 13 | 4022-591-74491 | SI-FCM-627 | | |

4.2.2    **Procedure**

The feeder trolley has to be equipped with a new type power supply.
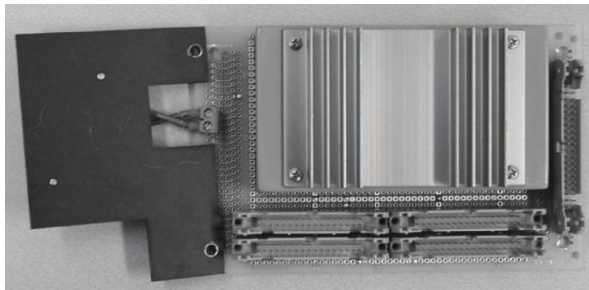



**Old type power supply**                                          **New type power supply**

1.   Open the trolley lid by loosening the two quick-release screws.
2.   Take out the air supply unit
3.   Disconnect old connection board
4.   Remove old connection board, 6 x Torx
5.   Mount (4) distance bushes.

**NOTE:    Do not us different screws. This may cause a short circuit on the TCB.**

6.   Check jumper settings on new controller board (see service tab)
7.   Mount new connection board in feeder trolley on the same position as where the old connection board was located.
8.   Remove old lid from the trolley, 3 x 5.5mm socket
9.   Mount the  Setup Assistant connector on the new lid

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10. Mount the new lid on the trolley

11. Connect all the cables

12. Reinstall the Velcro on the air distribution tube and on the feeder trolley to fix the air distribution tube to the feeder trolley

13. Close the lid with the two quick locking screws

14. Place new feeder trolley stickers underneath the old stickers on the trolley
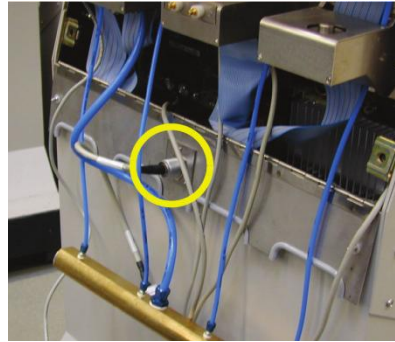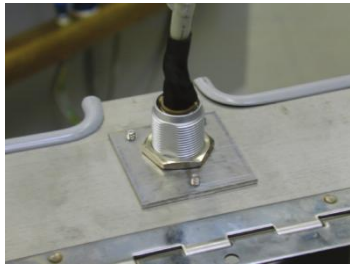


**Trolley connector on lid**

### 4.2.3 **Adjustments and testing**

- Functioning of the trolley controller board can be verified on the Setup Assistant Loading Unit. (If the feeder trolley contents can be shown on the loading unit, the feeder trolley controller board works.)
- Functioning of the air supply for bulk feeders can be verified on an FCM. (If the bulk feeders function normally on an FCM, the air supply works.)
- Functioning of the CAN bus can be verified on the machine using feeder trolleys. (If Setup Assistant 'sees' all feeder trolleys on the machine, the CAN bus works.)

### 4.3 Upgrade AX-201/ACM/AQ/D-9 Fixed Feeder bank (PA2090/34)

This installation describes the how to install the hardware for fixed feeder bank used for AX-201, ACM, AQ, D-9.

**Parts required**
- Per feeder bank: 1 Setup Assistant upgrade for one AX-201/ACM/AQ/D-9 fixed feeder bank PA 2090/95

**Special tools**
- PS/2 Mouse and a keyboard is required to install the software on the SVS Pro controller.

**Installation time**
Per Fixed feeder bank: 1 hour.

#### 4.3.1 Contents of delivery

| Contents of Feeder bank upgrade PA2090/34 | | | | |
|---|---|---|---|---|
| **Item** | **Code number** | **Description** | **Qty** | **Where used** |
| 1 | 4022-594-52815 | TROLLEY CONTROLLER BOARD | 1 | |
| 2 | 4022-512-29842 | BRACKET | 1 | To mount TCB on |
| 3 | 4022-592-44371 | FLATCABLE 34P ACM FFB | 4 | Replacement for existing cables |
| 4 | 4022-592-44391 | ACM ID-PLUG | 1 | Mount on pos TCB X8 |
| 5 | 2522-201-08031 | PAN SCR STL ST M3X6 | 6 | To mount TCB |
| 6 | 2522-600-27018 | WASH STL ST A4 3,2X9 | 6 | To mount TCB |
| 7 | 2522-001-17169 | CH SCR STL ST A4-70 M4X8 | 2 | To mount bracket |
| 8 | 2522-600-27026 | WASH STL ST A4 4,3X9 | 2 | To mount bracket |
| 9 | 2422-016-31355 | WIRE MARKERS | | |

All items that are delivered but not mentioned above can be discarded.

#### 4.3.2 Installation

1. Remove the feederbank from the machine.
2. Remove the cover plate (A) and upper cover plate (B) from the feederbanks
3. Make sure that all cables and wiring is properly labeled.
4. Disconnect all cables and wires from interconnection board (A).
5. Remove the interconnection boards (B)
6. Place new Trolley Controller Board (A) (item1)on bracket (B) with 6x screws (M3x8) and 3 washers. (items 5+6+7).

**Note:** **The two right screws and upper left screw should not have metal washers because of a possible short-cut.**

7. The wires to the screw terminals (A) are on identical positions on TCB as on interconnection board. (See service tab: TCB X6.1, X6.4, X6.5 and X6.7)
8. Replace the four flatcables, with longer ones from upgrade kit (item 3).

TAB 7 Upgrade

*Assembleon*

9. Label all flatcables from left to right with TCB X4, 3, 2 and 1.(use item 9)

| From | To |
|--------|--------|
| TCB X1 | ITF X4 |
| TCB X2 | ITF X3 |
| TCB X3 | ITF X2 |
| TCB X4 | ITF X1 |

10. Connect the flatcables (B) to the corresponding connectors on the TCB.

11. Place the ACM ID plug (4) for fixed feederbanks on X8 (item 4)

12. Connect the CAN cable TCB X9 (C) (in new FFB's already present), In case of an old FFB proceed to next step.

13. **Old fixed feeder banks:** only needed when the CAN cable TCB X9 is missing.
    - CAN cable TCB X9 (old fixed feeder banks only)
    - Cut the female connector from the CAN cable - TCBX9 (item 9)(cut between the connector and the labels)
    - Solder cable to red connector. Label numbers match with the numbers on the red connector.
    - Place the CAN cable in the machine. The female side in the cabinet where the controller will be placed. The male connector must be connected to the ICB-X2 of the CAN distribution board.

14. Mount all covers.

15. Place ID and type plate next to existing ones.

### 4.3.3 **Adjustments and testing**

Functioning of the CAN bus can be verified on the machine using feeder trolleys. (If SA 'sees' all feeder trolleys on an machine, the CAN bus works.)

## 4.4 Upgrade A-series tray trolley (PA2090/95)

This installation describes the how to install the hardware for tray trolleys used for AX-201, AQ, D-9.

**Parts required**
- Per tray trolley: 1 A-series tray trolley Upgrade Setup Assistant/SVS Pro PA 2090/95

**Special tools**
- PS/2 Mouse and a keyboard is required to install the firmware on the Trolley Controller Board.
- Drilling Machine (including drill 23mm, 18mm)
- Tap (M4)
- Vacuum cleaner

**Installation time**
Per A-series tray trolley: 2 hours.

### 4.4.1 Contents of delivery

| conversion kit A-series tray trolley (AQ2) | | | | |
|---|---|---|---|---|
| **Item** | **Code number** | **Description** | **Qty** | **Where used** |
| 1 | 4022-594-5290.x | Trolley Controller Board (TCB) | 1 | |
| 2 | 4022-589-8304.x | TCB mounting plate | 1 | |
| 3 | 4022-589-8346.x | Program extension cable | 1 | |
| 4 | 4022-589-8347.x | Run/program switch | 1 | |
| 5 | 4022-589-85991 | Can cable AQ tray trolley | 1 | |
| 6 | 4022-589-8348.x | LU interf. cable ACM tray | 1 | |
| 7 | 4022-589-8351.x | PS cable ACM tray | 1 | |
| 8 | 4022-589-8350.x | Tray ID-plug | 1 | |
| 9 | 4022-589-8351.x | Node address protection | 1 | |
| 10 | 2522-187-10066 | hex bolt M3X8 | 8 | |
| 11 | 2511-427-04019 | brass spacer M3X10 | 6 | |
| 12 | 2522-600-10017 | washer Ni 3.2X7 | 6 | |
| 13 | 2522-201-08029 | screw steel M3X5 | 6 | |
| 14 | 2522-401-09008 | hex nut M3 | 2 | |
| 15 | 2522-613-12005 | spring washer 3.1X6.2 | 2 | |
| 16 | 2522-401-09011 | hex nut M4 | 3 | |
| 17 | 4022-594-01661 | flat cable bracket 20p | 1 | |
| 18 | 4022-591-22051 | ID tray trolley upgrade sticker | 1 | |
| 19 | 2411-021-02203 | Fastening screws | | |

### 4.4.2 Procedure

A tray trolley must have a Trolley Controller Board (TCB) installed to be compatible with SA. The following procedure describes how you must install a TCB on a tray trolley. In this case, the TCB is only used for data storage at the machine. There is no connection between the trays and the TCB.

TAB 7 Upgrade
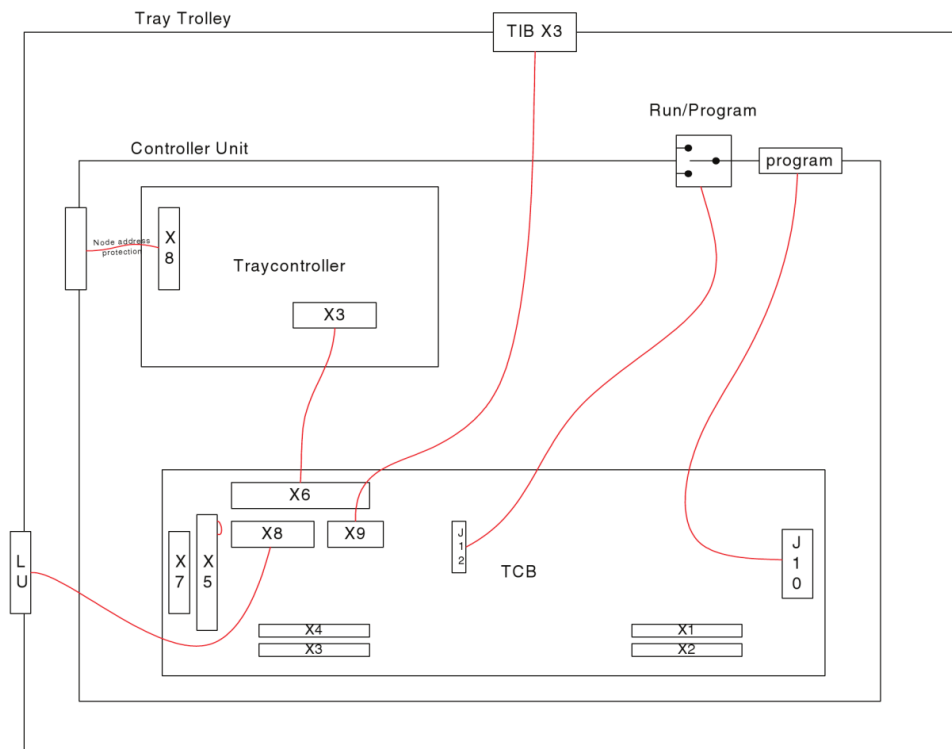


**Electrical connections to the TCB**

**Prepare tray trolley for Setup Assistant:**
1. Preassemble the TCB on the mounting plate

    - Mount on the TCB mounting plate six bushes with six countersunk screws.
    - Install the TCB with six socket head screws and washers on the bushes on the mounting plate.
2. Connect the program flat cable

    - Install the flat cable connector on the TCB mounting plate with two countersunk screws and spring washers.
    - Install the other side of the cable on J10 on the TCB.



**TCB on mounting plate**
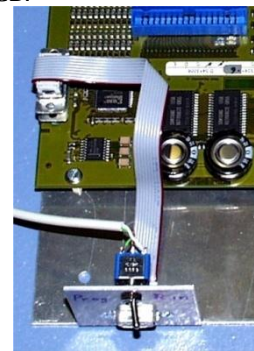


**Connect flat cable**

3. Connect the program switch cable

- Install the switch on the TCB mounting plate
- Remove the jumper from J12
- Install the connector of the program switch cable on J12. Pin 1 is the top pin. Make sure that all wires are connected to pins.



**Connect program switch cabel on J13**

4. Connect the cables and the ID-plug on the TCB

- 'CAN cable AQ-tray trolley' (4022 589 8599.x) to X9
- LU interface cable ACM tray (4022 589 8348.x) to X8 . If there is a loop on the X8 connector side then remove this loop.
- PS. cable ACM tray (4022 589 8349.x) to X6pin 1-5-7
- Put the Tray ID-plug (4022 589 8350.x) on X5.



**TCB connections**

5. Drill holes in the tray trolley

- Mark a point on the right bottom corner of the rear plate of the trolley. The point must be at 30mm from the side and at 85 mm from the bottom of the plate. (see 1)
- Drill through the plating and the frame a preliminary hole of approximately 3mm diameter. (This hole will be used to align the holes in the plate and the frame that you must drill later.) Take care not to damage the lift belt! Us a vacuum cleaner to avoid chips falling in the trolley.
- Remove the rear plate of the tray trolley.
- Drill a hole (Diameter 23mm) in the right bottom corner of the rear plate according to the drawing. Use the preliminary hole as a reference.
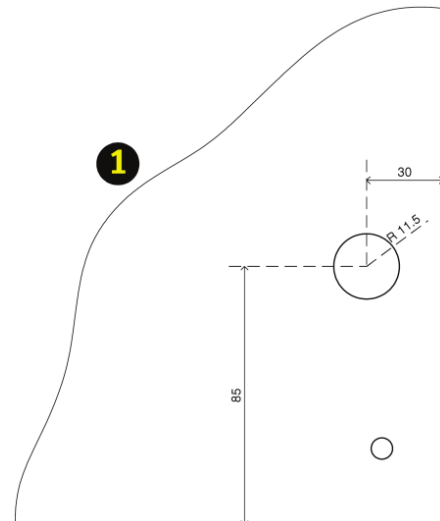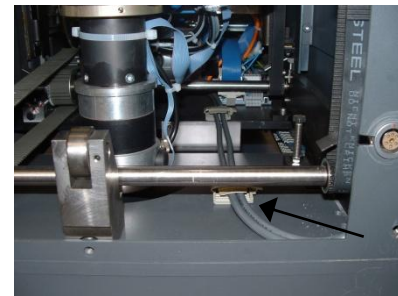


**Hole in rear plate of tray trolley**

TAB 7 Upgrade

*Assembleon*

- Drill a hole (Diameter 18mm) with a slot (9mm) in the frame of the trolley according to the drawing (see 2). Use the preliminary hole as a reference.
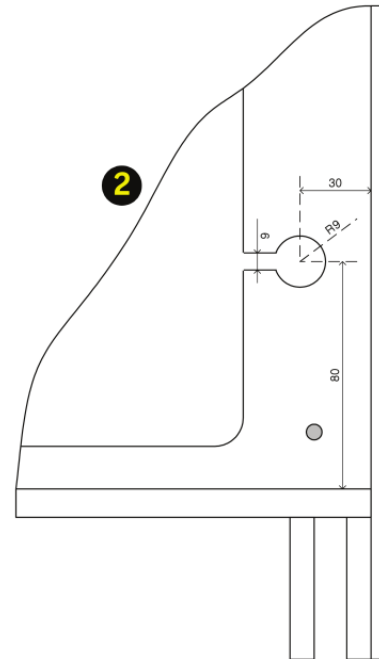
**Hole in frame of tray trolley**

6. Install the cable support bracket
   - Install the guiding bracket under the lift on the bottom plate of the frame.

**Install guiding brackets**

7. Get access to the new TCB location. Open the bottom part of the trolley. Refer to the Tray trolley service manual.

**Open bottom part of trolley**

TAB 7 Upgrade

8. Install the TCB

- Find the location for the TCB with mounting plate under the tray controller. It is necessary to remove the tray controller: remove the top cover (3 screws) and the base plate of the tray controller (3 screws).
- Note: When an earth wire is connected to one of the threaded studs then relocate this earth connection.
- Install the TCB with the mounting plate on the two threaded studs with two M4 nuts in the tray controller drawer. Note: It may be necessary to relocate the earth connection that is connected to the bottom base plate the tray controller drawer.



**Install TCB**

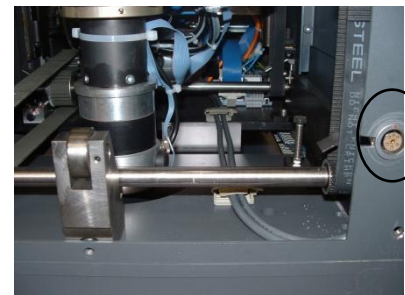9. Connect the TCB to the tray controller

- Connect the cable (X6) that is connected to the TCB X3 on the tray controller.
- Remove X8 from the tray controller and install the Node address protection (4022 598 8351.x) in between the cable and the connector. Use fastening screws (item 19) to lock the connector.

10. Reassemble the tray controller housing

- Make sure that the newly installed switch on the TCB is in the down position (Running Mode).
- Put the tray controller back in its original position.
  Do not fully assemble the bottom drawer of the trolley, you may have to install new software on the TCB.
- Guide the cables for the CAN and the LU interface to the rear of the trolley.
- Guide the cable through the trolley such that it cannot get trapped in the toothed belt. Use the guiding bracket to fasten the cables.

11. Install the LU interface connector

- Install the LU connector with the dot up in the hole in the frame.
- Guide the cable through the trolley such that it cannot get trapped in the toothed belt. Use the guiding bracket to fasten the cables.
- Connect the CAN cable to the connector: CIMCIS



**LU interface connector**

TAB 7 Upgrade

*Assembleon*

12. Reassemble the tray trolley

- Put the rear cover back on the trolley.
- If necessary, connect the trolley to the LU to install software on the TCB.
- Put the upgrade sticker on the inside of the trolley door (1) or at the controller box (upper-right corner).

13. If necessary, install new software on the TCB

- Slide the bottom drawer of the tray trolley open.
- Set the switch in the up (Program) position.
- Follow the firmware installation procedure (See Service tab, firmware installation)
- Set the switch in the down (Running mode) position.
- Close the bottom drawer over tray trolley.

14. Finish the installation

- Tighten the screws that lock the bottom drawer.

### 4.4.3 **Adjustments and testing**

Functioning of the trolley controller board can be verified on the Setup Assistant Loading Unit. (If the tray trolley contents can be shown on the loading unit, the feeder trolley controller board works.)
Functioning of the CAN bus can be verified on the machine using tray trolleys. (If Setup Assistant 'sees' all feeder trolleys on a machine, the CAN bus works.)